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THE PHILOSOPHY
OF
HERBERT SPENCER.

Being an Examination of the First Principles of his System.

By B. P. BOWNE, A. B.



NEW YORK:
NELSON & PHILLIPS
CINCINNATI: HITCHCOCK & WALDEN.

1874.

P R E F A C E.

THE following discussion is based upon several essays which lately appeared in the "New Englander." They have been extended somewhat, and, for the sake of greater unity than essays which were at first independent of each other could have, their form has also been altered. I have quoted copiously from Mr. Spencer for two reasons: First, no candid writer, whose purpose is as controversial as mine, will trust himself to represent his opponent's doctrine without the check, both of exact quotation and exact reference; and, secondly, because so contradictory and absurd are some of Mr. Spencer's positions, that my unsupported statements about them would not be believed.

Mr. Spencer claims to seek for truth. I

make the same claim; and, believing most heartily that Mr. Spencer has not found the truth, I have ventured to say so. Still the appeal is not to sentiment, much less to authority, but to the judicial reason. Let reason judge between us.

HALLE, *November, 1873.*

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REVIEW OF HERBERT SPENCER.



CHAPTER I.

WHAT IS EVOLUTION?

NO one longer holds with the ancient skeptic, that all things remain as they were since the beginning. All alike admit that the universe, as we know it, has had a beginning in time, and the problem which all alike propose is, to account for its origin and history. There was a time in the eternal duration when the present order did not exist, and a time when it began to be. How? This is the question which both science and religion attempt to answer.

Until within a few years Theism has been accustomed to conceive of creation as an instantaneous work. "The Creator spake, and it was done; he commanded, and it stood fast." In a moment, as the lightning flashes out of the dark night, so the worlds were "won from the void and formless infinite," and each one started on its way, perfect after its kind. By the word of the Lord were the heavens made. At his command the light kindled, and the oceans filled, and the whole earth swarmed with life. But it is claimed that the long times of

natural history and geology, and the gradual introduction of higher forms, have thrown doubt upon this conception. It is said that the law which holds for all present development is true for creation also: First the blade, then the ear, after that the full corn in the ear. Creation was not a single but a successive work; and, instead of being finished once for all, its vast and mysterious operations are still going on. Even yet the creative plan is not completed; and, so far from being at a distance, we are in the very midst of creation's week.

It is hardly necessary to point out that evolution in this general form is perfectly compatible with Theism. All that Theism cares to know is, that Mind is the primal cause and the eternal ruler of the universe. Whether it hastens on to its purpose, or whether it lingers upon its way, is a matter of comparative indifference. When was it that the Spirit of God brooded over nature to bring forth the living from the lifeless? Set up the date six thousand years ago, or carry it back to that nebulous time when the earth was without form and void, and darkness hung over the face of the deep; one cannot see that it makes any difference. When was it that the seeds of life and mind were sown? Was it after our earth had taken on its final form? or were they scattered upon that desert mist from which the world has sprung? How long was nature in fulfilling the Divine command—a week or an age? Has it ac-

complished the work, or is it yet toiling at the task? Were the lower forms of life created with the power of evolving the higher or not? Is organic existence complex in essence, or is its variety but a harmonious variation upon a single string? It is no degradation to the individual to be born; why should it be any more degrading to species to be born? If it is not degrading to teach that the individual reaches distinctive manhood only through the darkness and weakness of the birth-process and of unfolding infancy, I know not why it should be thought degrading to teach that species, too, struggle up through lower forms to their distinctive characteristics. I cannot feel that Theism, or even Christianity, is at all concerned with the answer to any of these questions. One view makes creation single, the other makes it successive. One concentrates the creative act upon a point of time, the other spreads it over unknown years. One makes nature instantaneously obedient; the other keeps it toiling for ages at the Divine command. Either view might be worthily held, and each has many elements of peculiar sublimity and grandeur. Religion cares only to insist that in the beginning a Divine sower went forth to sow.

But there is another form of the evolution theory. The thorough-going evolutionist, availing himself of the doctrine of the unity of the forces, paces with firm step through the animal and vegetable kingdoms, and finally brings all things home to the parentage

of matter and force. He drives back beyond all life, beyond all form, beyond even the present material elements, back to the raw and faint beginnings of matter and force themselves. At that distant point there are no such myths as life and mind ; these are unimaginable ages down the future. There is nothing there but little lumps of good, hard matter. These are the fountain-head of existence, and only need to be left alone long enough to transform chaos into creation. Mind is not the beginning and primal cause of things, but is the final outcome of nature—the highest point to which the whirling atoms climb. This is what purports to be the scientific book of Genesis. This is evolution as it is held by the New School of Philosophy, of which Mr. Spencer is one of the chief apostles.

Now let us note the true nature of the problem which the New Philosophy attempts to solve. It often happens that a few vague and general analogies are allowed to blind the reason to the infinite complexity of the problem, and it may even be questioned whether many of the evolutionists themselves properly appreciate the task they have to perform. Their proposition, in plain words, is this : All things have come, by a rigid mechanical sequence, from the condensation of that primeval mist. Not merely the forms and disposition of matter, but life, and mind, and their various manifestations, have all been evolved by necessary physical causation.

At first sight it would appear that thought and emotion have nothing in common with the buzzing of atoms ; but, in truth, these little lumps need only to be properly combined to become self-conscious, and think, and feel, and hope, and aspire ; and, if they have come forward under the proper conditions, they may even pray and worship. Whatever of nobility, of heroism, and of high manhood there may have been in the past, it was only a material combination, and had an exact physical equivalent. So completely is mind the result of organization, that it is even held that if a brain could be made exactly like that of Socrates, the owner would have the memory, the thought, the consciousness of Socrates. Two brains which are physically equivalent are also mentally equivalent. Construct, to-day, the brain of Plato as it was in his old age, and that brain would remember its early association with Socrates, the scenes at his trial and in the prison, the composition of the dialogues, and all that the real Plato actually experienced. Manufacture Cromwell's brain, and it could give you an exact account, from its own consciousness, of the battle at Naseby and the triumph at Marston Moor. It could tell of the Long Parliament, the condemnation of the King, and the Lord-Protectorship. Any man's thought, memory, consciousness, could be completely recovered by reconstructing his brain. If there had been a spectator who could detect the position of

the forces in that nebulous mass, he could have reasoned mechanically and mathematically, to orbital rings and solid globes, to man and his works, to Homer and the Iliad, to Newton and the Principia, to Milton and the Paradise Lost, to Shakspeare and Hamlet. By simple deductive reasoning, that spectator could have foreseen all our art, our science, our civilization, and could have prophesied all that is yet to come. He could have foretold all the folly and suffering and sin of men, and could have written human history, while yet the race was unborn. There is not a mote that trembles in the sunbeam, nor a leaf that is driven in the wind, whose existence and exact position he could not have foretold. The problem would, indeed, have been a complex one, and would have outrun the resources of our mathematics, but still it would have been a purely mechanical question. There is not a thought that ever toiled, or that ever shall toil, in a human brain, there is not an ache that ever wrung a human heart, that was not potentially there. The physical combinations that represent truth and honor, piety and affection, were all latent there. Our longings for knowledge were there; and when we inquire after the origin of things our thoughts but return to their early home. Mr. Spencer, and his philosophy, and the criticisms upon it, were there. The dancing atoms whirled and whirled, until they became self-conscious, and thought, and reflected, and

wrote their autobiography in the philosophy of Mr. Spencer. I am not misrepresenting the theory. Prof. Tyndall says of it: "Strip it naked, and you stand face to face with the notion that not only the more ignoble forms of animalcular or animal life, not alone the nobler forms of the horse and lion, not alone the exquisite and wonderful mechanism of the human body, but that the human mind itself—^{the}emotion, intellect, will, and all their phenomena—were once latent in a fiery cloud."* In this evolution there has been no guiding Mind, but only the working of physical force. Mr. Spencer demands no purpose, but only a power. One aim of his philosophy is to show that an intelligent Creator is needless. He is impatient of the doctrine that creation is the work of wisdom, and calls it the "carpenter theory." If we consider the fact and function of reproduction, which run through all organic nature, it would seem that here is overwhelming proof of a purpose to preserve the species; but we are not allowed to think so, on pain of being charged with "fetichism." If we think of the eye or ear as it forms in the womb, it would seem that the power at work must understand the laws of acoustics and optics, to form these organs in such exact and complex accordance with them. It would seem, too, that the formation of these organs before they are needed indicates a knowledge of future wants, and a purpose of supply-

* "Fragments of Science," p. 159.

ing them ; but this belief also lies under the ban of fetichism. We can hardly help believing that the several organs were intended to perform those functions which they actually do perform ; but this thought is only a species of the primitive fetichism. The eyes are used to see with, but they were not intended for seeing. The ears hear, but they were not designed for hearing. We see and hear because we have eyes and ears ; but we are forbidden to say that eyes and ears exist in order that we may see. The organs of reproduction serve to preserve the species, but they were not made for any such end. They were evolved and used for this purpose. Every thing, no matter how complex and purpose-like in its adaptations, represents the working of a power ; nothing whatever exhibits the fulfillment of a purpose. "The transformation of an indefinite, incoherent homogeneity into a definite, coherent heterogeneity, which goes on every-where until it brings about a reverse transformation, is consequent upon certain simple laws of force."* Such is the theory. To many it will seem to break down from pure excess of absurdity. At present I make no decision ; but I do insist that every one who is fond of talking magniloquently about evolution should know precisely what he has to prove.

Yet, strange as it may seem, Mr. Spencer denies that his system is atheistic. The ground of the

* "First Principles," p. 495.

denial is his doctrine of an unknowable. But, upon inquiry, it turns out that this unknowable is merely the substance which underlies phenomena. It has neither sense, intelligence, nor will. To attribute these to it is a species of fetichism. Yet Mr. Spencer dreams that he saves his system from atheism by calling this thing God. We will not quarrel about names. That which we know as matter is set up as the cause of all things. This matter, working according to mechanical laws, without intelligence or purpose, has produced the order of the world about us. All spontaneous action is distinctly repudiated. This is the doctrine; and this is essential atheism.

Mr. Spencer further denies that his system is materialistic. The New Philosophy plumes itself upon rising above the contest between the spiritualist and materialist, and pronounces the question to be a war of words. The claim is the emptiest pretense. "That no idea or feeling arises save as a result of some physical force expended in producing it, is fast becoming a commonplace of science; and whoever duly weighs the evidence will see that nothing but an overwhelming bias in favor of a preconceived theory can explain its non-acceptance." * That mental force is but transformed physical force, is the primary assumption. The mind itself is a "series of states of consciousness;" and a state of conscious-

* "First Principles," p. 280.

ness is a transformed nerve-current. Now note the result. Without a nervous system there can be no nerve-currents ; without nerve-currents there can be no states of consciousness ; and without states of consciousness there can be no mind. The mind comes into existence with the organism, and both perish together. During its existence, it is absolutely determined by external conditions ; for Mr. Spencer denies volitional freedom in the most explicit terms, and on the admitted ground that if freedom be a fact it is fatal to his system. Now, it is rather instructive, after such teaching, to be told that "the explanations here given are no more materialistic than they are spiritualistic." It is evident, however, from the frequency and earnestness with which Mr. Spencer makes this claim, that he really thinks his petty word-distinctions save his system from materialism. Yet, if the system which makes the soul a product of organization that must, of course, perish with the organism is not materialistic, it would be hard to say what materialism is. Indeed, this is the doctrine which most of the leaders of the New Philosophy now openly avow, whether from keener logical perception or from greater causes I cannot decide.

One more general criticism must be offered before proceeding to a specific examination of this philosophy. Every system of evolution which is not guided by intelligence is merely a new edition

of the time-honored theory of chance. In every mechanical system, all the results depend upon the first impulse, and between that primal motion and its effects there is room for nothing but necessity. However wide-spreading its effects may be, they were all necessarily contained in that first motion. Now, since to-day is determined by yesterday, it follows that all days were determined by the first day; and before this philosophy can assume to be an explanation at all, it must account for that first day. The implicit assumption of its disciples is, that by the time we have reached the nebula, we have come to a simple and unorganized form of matter which needs no explanation. But here it must be borne in mind that complexity and organization do not cease where we fail to trace them. Upon this point Prof. Tyndall speaks as follows:

“It cannot be too distinctly borne in mind that between the microscopic limit and the molecular limit there is room for infinite permutations and combinations. It is in this region that the poles of the atoms are arranged, that tendency is given to their powers, so that when these poles and powers have free action and proper stimulus in a suitable environment, they determine first the germ and afterward the complete organism. The first marshaling of the atoms, upon which all subsequent action depends, baffles a keener power than that of the microscope. Through pure excess of complexity, and long

before observation can have any voice in the matter the most highly-trained intellect, the most refined and disciplined imagination, retires in bewilderment from the contemplation of the problem. We are struck dumb by an astonishment which no microscope can relieve, doubting not only the power of our instrument, but even whether we ourselves possess the intellectual elements which will enable us to grapple with the ultimate structural energies of nature." *

Prof. Tyndall here calls attention to a fact which biologists and physiologists constantly overlook—the almost infinite complexity of what the microscope sees as simple. Nothing is more common than to hear physiologists, Mr. Spencer among the rest, speak of germs as perfectly homogeneous, because the microscope detects no trace of organization; and, indeed, atheistic reasoning derives much of its plausibility from this false assumption. If the complex animal can be derived from the homogeneous germ, it is not incredible that the complexity of creation should be derived from the homogeneous nebula. But Prof. Tyndall has taught us that homogeneity is only in seeming; that under the most homogeneous surface there are structural energies of such complexity, that we must question whether we have the mental elements which will enable us to grapple with them. It was in that realm, inaccessible to every thing but mind, that the wonders of creation

* "Fragments of Science," p. 153.

were wrought out. The atheist's attempt to escape into simplicity is fruitless. His very assumptions forbid it. Because of the necessity which connects cause and effect in every mechanical scheme, we must conclude that all which exists now, existed in its causes at any given time in the past. The nebulous period really manifested no less intelligence and purpose than the present does; the only difference is, that what is explicit now was implicit then. Going back to that nebulous time, we find tendencies and laws and powers so balanced that time alone is needed to give birth to the present order. No matter how far back we go; if we assume that that nebula was the ruins of an earlier system, which had in turn been born from an antecedent nebula, still, at the earliest time, we find the exact and complex adjustment of tendencies and powers which must in time give birth to to-day. Looking around upon that earliest nebula, we find that the present was there; and again we ask, What determined that first day? what procured that primal balance of poles and powers, which made it impossible that any thing but the existing order should be born? Here lies the mystery of creation; nothing is explained until this question is answered. It must be either the work of wisdom or of chance; and if the work of chance, then all that has sprung from it is the work of chance also. Mr. Spencer denies that intelligence has any thing to do with

evolution ; it follows, then, that chance is the architect of the universe. The vaporings about law and order do indeed serve to give an aspect of freshness to the threadbare arguments ; but they in no wise alter the underlying philosophy. When we get to the naked form of Mr. Spencer's teaching, it is that a cloud of atoms only need to be shaken together long enough to hit upon the present order and harmony of the universe. The New Philosophy is not so new after all ; for, except in terminology, this is precisely the doctrine which Democritus and Lucretius taught two thousand years ago. The only thing which gives the new heresy greater plausibility than the old, is the greater extension of the universe in time. Who knows what might happen in eternity ? To be sure, we do not find the atoms playing any such tricks now ; but who knows what might not have happened back yonder in the dark ? Time works wonders ; and so the evolutionist becomes confused and giddy from the long cycles with which he deals, and talks of "untold ages," as if time could certainly correlate with intelligence. Because the work of intelligence is not stolen outright, but by piecemeal, the theft is allowed to escape notice. It is the error of the old mythology over again. The evolutionist gets the world upon the turtle's back ; and then either he forgets to supply any footing for the turtle, or else his faith becomes robust enough to venture to stand alone.

We are now able to determine the true nature of the Spencerian doctrine of evolution. Whatever Mr. Spencer's personal views may be, the doctrine of his books is fatalism, materialism, atheism. These words are not used as terms of opprobrium at all, but as exactly descriptive of the system. There is no personal God ; there is no immortal soul. There is nothing but necessity without, and necessity within. To be sure, this philosophy is fond of speaking of progress, and talks, almost like a prophet, of the new heaven and the new earth. But, nevertheless, the progress ends in annihilation ; and all the wealth of manhood and affection which has made history rich and reverend, has dropped into darkness and perished. It is most instructive to hear materialism boasting of the high destiny which awaits the race.

But it is not for the critic to get frightened at results, but to ask for the credentials of the doctrine. It does not follow that the theory is false because it is materialistic and atheistic. We should indeed feel saddened and degraded if it were established, but that is no argument against it. If the reasoning is just, and the assumptions are well-founded, the doctrine must stand, with all its dreadful consequences. These are the questions which we have now to consider.

CHAPTER II.

LAWS OF THE UNKNOWABLE.

MR. SPENCER introduced his philosophy about ten years ago by the publication of his "First Principles." The volume is divided into two parts: the "Laws of the Unknowable," and the "Laws of the Knowable." Part I aims to determine the true sphere of all rational investigation, and, by so doing, to save the speculative mind from wasting its strength upon barren and essentially insoluble problems. The conclusion reached is that we can know nothing but phenomena, and their relations of coexistence and succession. Reality lies beyond the reach of our faculties, and is essentially unknowable.

When this work first appeared it was received with considerable applause, even by religious thinkers. Mr. Spencer admitted the reality of religion, and insisted upon the existence of God. To be sure, God, as the essential reality of the universe, must be unknowable; but still, as such reality, Mr. Spencer insisted upon the Divine existence as the most fundamental *datum* of science, as well as of religion. In this respect the work was an agree-

able change upon the open war, and scarcely undisguised atheism, of such men as Comte. It had, too, an aspect of humility. It set a limit to many extravagant speculations by declaring the limited nature of our faculties. These things moved many theologians to look upon the work as a flag of truce sent out from a hitherto hostile camp; and they failed to see that the concessions to religion amounted to absolutely nothing, while the demands from it were such as to render true piety impossible. Mr. Spencer's "reconciliation" was effected by the destruction of one of the parties, and his peace was that of death. A God who must always remain *x* for thought and conscience has no more religious value than a centaur or a sea-serpent. Not that Mr. Spencer intended this result when he introduced this Trojan horse; but such is, nevertheless, the outcome of the doctrine. In its religious aspects this theory of nescience is as pernicious as any in all speculation; more so, even, than the hardy, old-fashioned atheism, because it is more decorous in appearance, and more specious in argument, while the two are identical in the final result. The first is a precipice, bold and naked, over which one may plunge if he chooses, but not unconsciously; the second is the same precipice covered over with snow, not strong enough to save one from the abysses, but powerful by its seeming safety to lure one to destruction.

In passing to an examination of Mr. Spencer's reasoning I must bespeak the readers' patience. The discussion will lead us into many metaphysical recesses; and the country through which we take our way is surely as dry as Sahara, if, indeed, it be not full as barren.

This know-nothing doctrine is as old as philosophy, but the philosophy of the doctrine has changed with time. Formerly the difficulty was external, now it is internal. "We cannot know any thing," the old skeptics used to say, "because as much, and as good, evidence can be brought against any proposition or belief as for it; and hence the mind must remain in eternal balance between two opinions." But the fault was in the evidence, not in the mind. If there were any reality to know, the mind was clearly competent to apprehend it; but is there any reality to know? This was the question with them; and they held that in every case the contradictions of the testimony so embarrassed the jury as to render necessary the Scotch verdict—not proven.

Now, all this has changed. The difficulty is no longer external, but internal. The criticism of fact has been exchanged for the criticism of faculty. The nescientist no longer inquires whether reality exists, but contents himself with the humbler question, whether we have any faculties for knowing it, supposing it to exist? As the result of his

inventory, mental limits have been discovered, and all knowledge of the real is said to be beyond them. The grounds of nescience are much more fundamental than the old know-nothings dreamed. By the constitution of the mind itself we are forever prohibited from reaching reality. Phenomena are all we know; and these, when analyzed to the bottom, can never give us things as they are, or "things in themselves." Between appearances, or things as we know them, and the hidden reality behind them, an impassable gulf is fixed.

This form of nescience began with Kant. He taught that there are forms of thought and sensibility in the mind which determine the form of our knowledge, something as a mold gives shape to a casting. The matter of any thing, as an iron ball, is one thing; the form is quite another. So the content, or matter of our knowledge, is given by the thing; but the form, which is entirely different, is given by the mind itself. And as the same matter can be molded into a thousand different forms, can be round, square, triangular, etc. : so the same external reality can take on different shapes, according as it is cast in different mental molds. Hence all our knowledge is a composite, of which the two factors are, the external thing, and the internal form. What the thing is apart from this form, or what it is "in itself," is, and must be—to use the established phrase—"unknown and unknowable." Moreover, as it is

conceivable that other orders of intelligence should differ from the human, we can never be sure that our knowledge has universal validity. We think things in the relation of cause and effect, of substance and attribute, etc. ; but these relations are only forms of our thought, and correspond to no reality in the thing. We cannot help assenting to the so-called intuitions, not because they represent the universal truths of the universe, but because they constitute the skeleton of the mind itself. They uphold the mind and give law to its tendencies ; but so far from revealing reality to us, they rather lead us away from it. Their very necessity stamps them as mental forms, and their utterances become untrustworthy in proportion as they are sure. Hence our knowledge is of phenomena only, and is true only for us ; at least, we can never be sure that it is true for other orders of being. The windows of the human mind are of stained glass, and the inhabitant within is forever cut off from the white light of reality beyond.

These are the essential features of the Kantian theory ; and the doctrine of relativity, upon which Mr. Spencer relies for the support of his view, is but a degraded form of the same. This later form of the doctrine, as it appears in the works of Hamilton, Mansel, and Spencer, has far less logical and metaphysical value than the earlier form as taught by Kant. In Kant's works, one commonly finds both good sense, and good logic. The arguments are not mere-

ly logical, but real. We may not admit their validity, but at the same time we feel that they have a genuine momentum, and are not a logical play on words. Indeed, if Kant could have saved his system from Idealism, it would have been well-nigh impregnable. But in passing to the relativity philosophy, one is sensible of a marked change in this respect. There seems to be a kind of intellectual shuffling going on; a playing fast and loose with words, as the "absolute," "infinite," "conditioned," "unconditioned," etc. There is an air of jugglery and thimble-rigging over the whole. This makes one regard many of the conclusions as he does the celebrated one, that each cat has three tails, or that the minute-hand of a watch can never overtake the hour-hand; to disprove them may be difficult, but to believe them is impossible. We certainly see the ghost according to programme; but we cannot rid ourselves of the conviction that concave mirrors and magic lanterns are at the bottom of the show. Kant shows us real existences fighting, the relativist shows us shadows. These indulge in the most dazzling fence, and cleave each other through and through; but no blood is drawn, and nobody is hurt.

Armed with a knowledge of our mental limits, Mr. Spencer, following in the wake of Hamilton and Mansel, proceeds to charge all our familiar conceptions with involving contradictions and intellectual *hari-kari*. A further analysis of our faculties reveals

to his searching gaze a pack of intellectual impostors who, by some hocus-pocus, have contrived to shuffle themselves into such universal acceptance, that most men regard them as necessary truths. But these villains are usurpers nevertheless; and having the bad taste to contradict our philosopher, they very naturally excite his wrath. He at once brands them as "pseud-ideas," keeps them just long enough to give evidence against themselves—which is assumed to be the only true evidence they can give—and then turns them out of doors. We notice that they are continually smuggled in to help the prosecution, but are forbidden to say a word for the defense. This is the last feather. After being convicted of harboring "pseud-ideas," the mind feels the propriety of being humble. For the present our only hope is that, as these necessary truths, *alias* pseud-ideas, are such liars, they may have lied when they spoke against themselves.

The authority for this summary ejection seems to be that these truths cannot be pictured by the imagination, and hence are "unthinkable," and "inconceivable." The test of the knowable is its ability to come before the representative faculty. Whatever can do this may be admitted to the rank of reality; whatever cannot thus appear is banished into the outer darkness of illusions and "pseud-ideas." Horsed upon this test of knowledge, Mr. Spencer gallops gayly out of the *à priori* country, but, like the famous John Gilpin, is carried farther than he

cares to go, before he dismounts. Can any thing be more mocking to an exact thinker, than this claim that nothing shall be admitted to the rank of knowledge, which cannot come before the representative faculty? What is the image of force? or of cause? of law? or of existence? Yet these, and a multitude of other ideas, all absolutely without the imagination, do constantly enter into the exactest reasonings, each keeping its own place without any danger, nay, without any possibility, of being confounded with any other. Now are we to claim that all knowledge into which these "unthinkable ideas" enter is only illusion? If we do, then science, as well as religion, must vanish into the dreams of night. This test of Mr. Spencer's reduces all knowledge to the scale of sensation, and makes science itself impossible. For observation and experiment constitute a very small portion of scientific knowledge. The greater part is only inference from observed facts, and depends upon the validity of our belief in causation. Science deals with forces, and causes, and laws, and space, and time; these words are forever upon its lips. But what does the imagination know about forces, and causes, and laws? All these ideas are utterly without the imagination, and are strictly inconceivable, in the sense that no mental image can be formed of them. It follows, then, that science, which is built entirely upon these ideas, is blank illusion, and must be content to vanish, along with religion, into the

abysses of the unknowable. If involving unthinkable ideas warrants the banishment of religion, it also warrants the repudiation of science. If Mr. Spencer insists upon this test we need go no further. Sensation is the measure of knowledge, and his philosophy falls to the ground. Mr. Spencer has mowed down the "pseud-ideas" without mercy; but in his enthusiasm has, unfortunately, mowed off his own legs. After we have gone further into Mr. Spencer's work, we shall not be surprised at any thing in the way of contradiction; but at present it seems strange that he should have adopted such a test without perceiving that it tells as powerfully against science as against religion. Besides, too, it is plainly false; the conceivable, in his sense of the word, does not comprise all the knowable; indeed, the most certain knowledge we have is what Hamilton has most happily termed the "unpicturable notions of the intelligence." Mr. Spencer says large numbers are inconceivable; but that does not shake our faith in our calculations. Great magnitudes fail of an adequate conception, but our knowledge is none the less sure. The infinity of space baffles and breaks down the imagination, but is an assured fact of the understanding. Self-existence, Mr. Spencer says, is an inconceivability of the first magnitude, and all ideas into which it enters must be sentenced to perpetual imprisonment in the unknowable; yet we have no surer piece of knowledge than that there is self-existence

somewhere. Whenever the intellect is steadied and focussed for exact statement, it affirms, with the utmost certainty, that all we see finds its support and reality in an existence within it, or beyond it, which is self-centered and abiding. The truths of the understanding are not the truths of the imagination ; and it is the neglect of this fact which lies at the bottom of Kant's antinomies, Hamilton's contradictions, and the general assortment of inconceivabilities which Mr. Spencer tries to saddle upon our reason.

A good illustration of the value of this test, is given in his criticism of the atheistic, pantheistic, and theistic theories of the origin of the universe.

Mr. Spencer believes that there is a tone of truth even in the falsest creed, and that every creed, if analyzed, would be found to agree in something, even with its seeming contradiction. "To doubt this would be to discredit too profoundly the average human intelligence." Hence, if we should lay aside from the various creeds all that is peculiar to each, and find that in which they all agree, this common article of faith would possess the very highest claim to our acceptance. Accordingly he summons the atheist, pantheist, and theist, in turn, to appear for examination.

Between atheist and theist, it would seem a hopeless task to look for common ground ; something like harmonizing yes and no in some higher unity. But great is logic, and Mr. Spencer proves equal to the task. The result of the examination is the proof

that "not only is no current hypothesis tenable, but also that no tenable hypothesis can be framed." The "soul of truth," existing in these diverse statements, turns out to be that none of the parties know any thing about the matter. This is what they have always been trying to say, but were never able to enunciate it until Mr. Spencer helped them. An omnipresent mystery behind the universe, unexplained and unexplainable, is the ultimate religious truth in which all conflicting creeds agree.

What now is the reason for involving atheist, pantheist, and theist, in a common condemnation? It is that they all postulate the inconceivable idea of self-existence. Each view assumes either the creation or the Creator to be self-existent; and hence all are equally untenable. "Differing so widely as they seem to do, the atheistic, pantheistic, and theistic hypotheses contain the same ultimate element. It is impossible to avoid making the assumption of self-existence somewhere: and whether that assumption be made nakedly, or under complicated disguises, it is equally vicious, equally unthinkable."—P. 36.

I suspect that neither atheist, pantheist, nor theist would be seriously dismayed by this argument. For whether it be unthinkable or not, it is one of the strongest affirmations of the reason that there is self-existence somewhere; the question between the theist and his opponents being, where that existence is to be found. It is in the material universe, say

the atheist and pantheist. That cannot be, says the theist. The visible universe bears every mark of dependence; there must be some being apart from this, uncaused and independent. "Stop," says Mr. Spencer, "if we admit that there can be something uncaused there is no reason to assume a cause for any thing."—P. 37. "Those who cannot conceive a self-existent universe, and who therefore assume a creator of the universe, take for granted that they can conceive a self-existent Creator. The mystery which they recognize in this great fact surrounding them on every side, they transfer to an alleged source of this great fact, and then suppose they have solved the mystery."—P. 35. "Lastly, even supposing that the genesis of the universe could really be represented in thought as the result of an external agency, the mystery would be as great as ever; for there would arise the question, How came there to be an external agency?"—P. 35. These statements would have some force if the law of causation committed us to the absurdity of an infinite series. If every thing must have a cause, then causes themselves must have causes, and so on in endless regression. In that case it would be as well to break the chain in one place as in another; and it would be strictly true that "if there can be any thing uncaused, there is no reason to assume a cause for any thing." But the law of causation commits us to no such absurdity as an infinite series of causes.

It is not existence, as such, that demands a cause, but a changing existence. Could the universe be brought to a standstill so that all change should cease, the demand for a cause would never arise. It is entrance and exit only that give rise to this demand. Whatever manifests them must have its cause, whatever does not manifest them can dispense with a cause. Mr. Spencer's claim that "Did there exist nothing but an immeasurable void, explanation would be needed as much as now," is a mistake. It is change that suggests causation, the changeless is independent and eternal. The dependent suggests the independent, and when the mind has reached that, it rests. Mr. Spencer himself believes this. He cannot rest in the phenomena of the visible universe, but insists upon a fundamental reality behind them as their abiding cause. And that, too, after telling us that, "If we admit there can be any thing uncaused, there is no reason to assume a cause for any thing." Surely this fundamental reality is an intruder if the *dictum* be true. One or the other must leave forthwith. If the *dictum* goes, Mr. Spencer's argument against a self-existent Creator falls to the ground; if the fundamental reality is discarded, the bottom falls out of his philosophy. And now, since the visible universe is but a vast aggregation of events, of entrances into and exits from existence, let the reader judge whether Mr. Spencer is justified in dismissing the atheistic, pantheistic,

and theistic hypotheses as equally untenable ; or whether the theist is right in passing behind the seen and temporal to the unseen and eternal. Surely the suicidal proclivities of Mr. Spencer's test of knowledge should be restrained. We have before found it mowing off its own legs, and here it insists upon biting off its own nose. For Mr. Spencer apparently believes that his "fundamental reality" is self-existent ; which assumption, by his own reasoning, makes the "fundamental reality" an "untenable hypothesis," involving "symbolic conclusions of the illegitimate order." We surely are in a sad predicament here. We cannot call the "fundamental reality" uncaused, for Mr. Spencer says that, "If we admit that any thing can be uncaused, there is no reason to assume a cause for any thing." But we cannot call it caused, for then it would not be the fundamental reality any longer. For the same reason we cannot call it dependent ; but we cannot call it independent, for that involves the idea of self-existence, which would make it an "untenable hypothesis." The beauty of the reasoning will perhaps be better appreciated if we see the arguments side by side.

Whatever involves the idea of self-existence, is an untenable hypothesis.

God involves the idea of self-existence.

God is an untenable hypothesis.

Whatever involves the idea of self-existence, is an untenable hypothesis.

The fundamental reality involves the idea of self-existence.

The fundamental reality is *not* an untenable hypothesis.

The logic is not the best, to be sure, but the generalship is of the very highest order. The only explanation I can think of is, that Mr. Spencer has one kind of logic for religious ideas, and another kind for his own—a view which the internal evidence seems to support.

As the result of his criticism of scientific and religious ideas, Mr. Spencer concludes that a “fundamental reality” underlies the universe, and that this is “unknown and unknowable.” Religion ends in mystery, science ends in mystery; and our highest knowledge is to recognize that this mystery is utterly inscrutable.

To prove that this mystery lies utterly without the limits of knowledge, Mr. Spencer appeals to the doctrine of the relativity of knowledge, and offers the following argument:

“If, when walking through the fields some day in September, you hear a rustle some yards in advance, and on observing the ditch side where it occurs, see the herbage agitated, you will probably turn toward the spot to learn by what this sound and motion are produced. As you approach there flutters into the ditch a partridge, on seeing which your curiosity is satisfied—you have what you call an *explanation* of the appearances. The explanation, mark, amounts to this: that whereas throughout you have had countless experiences of disturbances among small stationary bodies, accompanying the movements of

other bodies among them, and have generalized the relation between such disturbances and such movements, you consider this particular disturbance explained on finding it to present an instance of the like relation. Suppose you catch the partridge, and, wishing to ascertain why it did not escape, examine it, and find at one spot a slight trace of blood upon its feathers. You now *understand*, as you say, what has disabled the partridge. It has been wounded by a sportsman—adds another case to the many cases already seen by you, of birds being killed or injured by the shot discharged at them from fowling-pieces. And in assimilating this case to other such cases consists your understanding of it. But now, on consideration, a difficulty suggests itself. Only a single shot has struck the partridge, and that not in a vital place; the wings are uninjured, as are also those muscles which move them, and the creature proves by its struggles that it still has abundant strength. Why, then, you inquire of yourself, does it not fly? Occasion favoring, you put the question to an anatomist, who furnishes you with a *solution*. He points out that this solitary shot has passed close to the place at which the nerve supplying the wing-muscles of one side diverges from the spine; and that a slight injury to the nerve, extending even to the rupture of a few fibers, may, by preventing a perfect co-ordination in the action of the two wings, destroy the power of flight. You are no longer puzzled. But

what has happened?—what has changed your state from one of perplexity to one of *comprehension*? Simply the disclosure of a class of previously known cases along with which you can include this case. The connection between lesions of the nervous system and paralysis of limbs has been already many times brought under your notice; and here you find a relation of cause and effect that is essentially similar.”—P. 69. Mr. Spencer claims, justly enough, that all scientific explanations are of this order; they are but classifications of particular facts under one more general. Thus we explain the sinking of a stone, the floating of a cork, the fall of heavy bodies, the rise of a balloon, the flow of the rivers, the swell of the tides, and the motion of the planets, all, by referring them to the general fact of gravitation. This is the nature of all scientific explanations. But clearly such a process must come to an ultimate fact at last which cannot be included in any other, and so remain unexplained and unexplainable. “For if the successively deeper interpretations of nature, which constitute advancing knowledge, are mere inclusions of special truths in general truths, and of general truths in truths still more general; it obviously follows that the most general truth, not admitting of inclusion in any other, does not admit of interpretation. Manifestly, as the *most* general cognition at which we arrive cannot be reduced to a *more* general one, it cannot be understood. Of ne-

cessity, therefore, explanation must inevitably bring us down to the inexplicable. The deepest truth we can get at must be unaccountable. Comprehension must become something other than comprehension before the ultimate fact can be comprehended.”
—P. 73.

Mr. Spencer's argument proves an unexplainable, not an unknowable ; for, though we cannot give the *rationale* of that final fact, by the supposition, we know it as a fact. To return to our illustration, the essential nature of gravitation is a profound mystery ; but gravitation as a fact, the law of its variation, the truth that it includes all the particular facts mentioned, all these things science regards as established beyond question. Clearly, the incomprehensible may be known as a fact, and its laws and relations may also constitute a part of our most assured knowledge. Mr. Spencer's conclusion is the extremely commonplace one, that argument and all explanation postulate something as their foundation or support. I admit most cheerfully that explanation must assume the unexplainable, or independent ; but I deny that this unexplainable is the unknowable. Our own existence is wrapped in the profoundest mystery, but that does not destroy the fact that we have a large knowledge of human nature. No more can Mr. Spencer argue from the mystery of the Divine existence, to our necessary ignorance of the Divine nature.

Mr. Spencer, however, has great faith in this argument, and advances it again in the following form :

“Every complete act of consciousness, besides distinction and relation, also implies likeness. Before it can become an idea, or constitute a piece of knowledge, a mental state must not only be known as not only separate in kind from certain foregoing states to which it is known as related by succession, but it must be known as of the same kind with certain other foregoing states. . . . In brief, a true cognition is possible only through an accompanying recognition. Should it be objected that, if so, there cannot be a first cognition, and hence no cognition, the reply is, that cognition proper arises gradually—that during the first stage of incipient intelligence, before the feelings produced by intercourse with the world have been put in order, there are no cognitions, strictly so called ; and that, as every infant shows us, these slowly emerge out of the confusion of unfolding consciousness as fast as these experiences are arranged into groups—as fast as the most frequently repeated sensations, and their relations to each other, become familiar enough to admit of their recognition, as such or such, whenever they recur. Should it be further objected, that if cognition presupposes recognition there can be no cognition even by an adult, of an object never before seen, there is still the sufficient answer, that in so far as it is not assimilated to previously-seen objects it is *not* known, and it *is* known.

in so far as it is assimilated to them. Of this paradox the interpretation is, that an object is classifiable in various ways, with various degrees of completeness. An animal hitherto *unknown* (mark the word), though not referable to any established species or genus, is yet *recognized* as belonging to one of the larger divisions—mammals, birds, reptiles, or fishes; or should it be so anomalous that its alliance with any of these is not determinate, it may yet be classed as vertebrate or invertebrate; or if it be one of those organisms of which it is doubtful whether the animal or vegetal characteristics predominate, it is still known as a living body; even should it be questioned whether it is organic, it remains beyond question that it is a material object, and is cognized by being recognized as such. Whence it is manifest that a thing is perfectly known only when it is in all respects like certain things previously observed; that in proportion to the number of respects in which it is unlike them, is the extent to which it is unknown; and that hence, when it has absolutely no attribute in common with any thing else, it must be absolutely beyond the bounds of knowledge.”—P. 79.

To the objection that if a true cognition implies recognition, there can be no first cognition, and hence no cognition, Mr. Spencer's reply that cognition proper arises gradually, is entirely inadequate. If all cognition presupposes recognition, then a first cognition is a manifest impossibility. Recognition,

being cognition over again, must of necessity follow upon cognition ; but cognition must also follow recognition ; that is, each must follow the other, and hence both are impossible. But Mr. Spencer escapes from this dilemma by teaching that cognition proper arises gradually in childhood ; and thus we get the raw material for future cognitions. But if cognition proper arises gradually in childhood, why may it not arise gradually in manhood as well ? Mr. Spencer's answer to the objection is a good specimen of a favorite method with the associational psychologists. Whenever one of their fundamental assumptions is contradicted by the experience of manhood, it is easy to say that in infancy—a period of which any thing can be affirmed, since nothing is remembered—it was strictly true. This is certainly making the most of the early years. The "small child" is put into the associational mill, and after a little brisk grinding is brought out with a complete set of mental furniture. When the critic reaches the spot he is blandly told that the work is done, and the machinery put away. He is further warned that any search on his part will be useless ; as the traces of manufacture have been entirely obliterated.

The argument of the quotation just made is the fallacy we have already examined—the confounding the unexplainable, or unclassifiable, with the unknowable. Plainly, we can only give the *rationale* of classifiable facts, for explanation is only classifica-

tion ; but the facts must be known as facts before they can be classified. A thing in which we detect no likeness to other things is not an unknowable, but an unclassified thing. When we are enabled to classify a body of heterogeneous facts, we get a knowledge of their relations to each other, but no new knowledge of them as facts. To say that such facts can only be cognized by being recognized as matter, is to deny them to our perceptive faculties, and delude ourselves into thinking that this is a failure of the knowing power.

As a philosophical doctrine this relativity theory is not well-defined. It is, in fact, a combination of several doctrines, some of which are not only true, but truisms ; while the rest look marvelously like something "pseud." We have already had some confused illustrations of it, let us examine it further.

Sometimes it means that we can only know things as related to ourselves, that is, that we have only such knowledge as our faculties can give us. In one sense this is axiomatic. All knowledge implies a thing to be known, and a faculty for knowing it. Clearly, then, we can know only those things, or properties of things, which are related or adjusted to our faculties. An eye could not see sound ; an ear could not hear vision. It is said that there are sounds of so high a pitch as to be above the limits of our hearing, and others again of so low a pitch as

to be below them. Our knowledge of sound then is relative—we hear only those notes which are properly related to the ear. It is very conceivable that there should be organisms which could perceive sounds that range far above the limits of our hearing, and perhaps none of those which we hear. Now, in each case, the knowledge of sound is relative ; but are we to say in such a case that neither party knows any thing about sound ? Two men stand on the shore and look seaward. One has stronger eyesight than the other, and hence the range of vision is relative ; but the fact of vision is none the less real. Certainly it would not be claimed, because one sees farther than the other, that both see nothing. Plainly, nescience finds no support from this interpretation of the doctrine of relativity. Let there be other beings than men, and let their faculties far outrun ours, or be altogether different from ours, the fact casts no discredit on what knowledge our faculties do give us.

Again, the doctrine sometimes reads : We cannot know pure being—that is, being without attributes—but only the attributes of being.

This, I conceive, is not an exact statement of our knowledge. It is not true that we know attributes alone, but rather, we know being as possessing attributes. Thus, we do not know redness, hardness, squareness, but a red, hard, square thing. All our knowledge begins with a knowledge of things ; and it is not until considerable progress has been made

in abstract thinking that a knowledge of attributes becomes possible. But let the doctrine stand as stated, still nescience derives no support from it. We cannot know pure being for the sufficient reason, that there is no such thing to know. All this talk about pure being arises from a pernicious habit into which thinkers fall, of thinking that whatever can be separated in thought, can also be separated in fact. A beam has an upper and lower side, either of which can be thought of separately, but no beam can exist without both sides. Being without attributes, is as impossible as a stick without two ends; and to argue about pure being is as absurd as to talk of pure "upper-sideness," or absolute "one-endness." But supposing such a fiction to exist, we cheerfully admit that we can know nothing about it; nor need one be much distressed at the loss. Matter or spirit, the finite or the infinite, apart from their properties or powers, excite very little curiosity in our mind. Imagine a metaphysical engineer who, knowing how his engine is made, how it works, what it can do, etc., should say that this is no knowledge at all, and insist upon knowing the "absolute" engine, or engine "in itself." But if any one still believes that pure being is not pure nonsense, and is grieved at his inability to know it, be it far from me to disturb, or speak lightly of, so profound a sorrow. For myself, however, if the relativist will allow me to know, not being in itself, but the powers, the properties of being, I

am content. The attributes of being are its manifestations ; and this proposition that we cannot know pure being amounts to the harmless truism, that unmanifested being must remain unknown.

These forms of the relativity doctrine give no support to nescience, and are but laborious attempts to establish the truisms, that all knowledge must be related to our faculties, and that whatever is not thus related cannot come into knowledge ; both of which might have been admitted beforehand ; but to establish his theory, Mr. Spencer must deny that our faculties give us the real properties of being, or the objective reality of things. This is what he means ; and this is the tacit assumption of his entire argument.

Mr. Spencer is not an idealist. He insists as strongly upon the existence of a fundamental reality as upon our ignorance of its nature. "It is rigorously impossible to conceive that our knowledge is a knowledge of appearances only, without at the same time conceiving a reality of which they are appearances ; for appearance without reality is unthinkable."—P. 88. Now, it seems to me that this knowing nothing position is the most untenable possible ; that Mr. Spencer has been so flushed with his victory over the "pseud-ideas" as to push the rout too far, and in attempting to drive them into the abysses, has himself tumbled in after them. The claim that all we know is unreal, and that all we do not know is real, looks very

much like an "untenable hypothesis." We have already seen what cruel contradiction the fundamental reality suffers from Mr. Spencer's own logic: I wish now to show that Mr. Spencer must either go farther, or not so far; that he must either adopt absolute idealism, or admit the objective validity of our knowledge of things. To deny a thing to thought, and save it to existence, is impossible; for to risk a logical paradox—nothing which is said to exist can be declared unknowable until something is known about it. To be unknowable it must fulfill certain conditions, and have certain marks to distinguish it from the knowable; and unless one assumes a knowledge of its nature, he cannot declare it unknowable. In his present position this modern Samson parallels the ancient by pulling the temple on his own head.

In the statement that our faculties do not give us the objective reality of things, we recognize at once the mental forms of Kant. Let us see the logical result of such teaching.

Matter is said to have form; has it really form? It has for us, says the know-nothing, but it has no form in itself. Some higher intelligence might see it as formless. Then the form which I attribute to it is a phantom of my own creation.

Matter is said to resist; has it really any such power? Again, the answer is, that matter "in itself" has no such power. We must conclude, then, that the resistance of matter is a fiction of the mind that

affirms it ; as ghosts exist only in the eye that sees them.

The line of argument is evident. We have but to call up in turn the various attributes of matter, and win from the know-nothing the confession that all we think we find in matter is but the shadow of the mind itself. But how, then, do we know that there is any "fundamental reality," or "thing in itself?" If all that we do know is imaginary, there seems to be no good reason for supposing that all we do not know is real. If mental limits, or mental forms, can create so much, it is very credible that they can create the thing outright.

But it is urged, in reply, the same thing produces diverse effects upon different organisms ; and as the reality cannot be like all the reports given of it, it is most reasonable to suppose it like none of them. White light falling on different objects has no tendency to make them all of the same color, but rather makes the particular color of each more vivid : the blue becomes bluer, the green becomes greener, etc. If we suppose persons to have eyes that see only blue or green, their judgment would undoubtedly be, every thing is blue or green. Now here we have an illustration of the unknown reality (white light) producing effects altogether diverse from itself and from each other, (blue light, green light.)

There are a few stock objections of this kind which are of as much value to the know-nothing as the

"small child" is to the associational psychologist, or as the charges of "fetichism," "anthropomorphism," and "bibliolatry," are to the theological iconoclast. But they amount to nothing. Supposing such a queer lot of eyes to exist, where is the contradiction? If light is said to be blue, green, etc., it is only the truth: light is blue and green. The error would be in affirming it to be only blue or green. If this error be avoided, there is no contradiction, and no ground for nescience. It is only saying that one eye is adapted to the blue ray, and the other to the green.

The same reasoning applies to the other objections which the know-nothing is in the habit of urging against the truth of the senses. His hypothetical senses, which are to give such different reports of things, would in no wise impair the credibility of the faculties which we actually have. As a result of these considerations, I hold that he must either advance or retreat. If mental forms can create so much, they can create all. If the known has no root in reality, the unknown has surely no better claim. Between absolute idealism and the admission that our knowledge of things is real, there is no middle ground. No mental form, and no relativity of thought, can bridge the bottomless pit between.

But do you mean to say that you have an "absolute" knowledge of things? that you know the thing "in itself?" What an "absolute" knowledge, etc., may be, I am not entirely certain. I only mean to

say that what we seem to find in a thing is really there; that we know the thing as it is. There may be other beings whose faculties may present the same thing to them under an altogether different aspect; but in every case the particular aspect which the faculties do present represents the thing as it is. We see a thing as square; there may be beings whose faculties do not enable them to apprehend form, but all beings who can appreciate form see that thing as square. The squareness belongs to the thing. We measure the speed of the light, and the distances, and magnitudes of the stars; possibly some orders of intelligence might be incapable of appreciating these ideas, but, for all who can, they remain the same. This is what is meant by saying that we know the thing as it is. I suspect, too, that this "absolute," "thing in itself," "fundamental reality," etc., in the way in which the terms are used, is really the very pseudest of pseud-ideas. Here is a table which has legs, leaves, top, cover, etc. This is beyond question, this is the thing, and this is the whole of it. If there be any ghostly, absolute-fundamental-reality-thing-in-itself table lurking around the real one, I am happy to admit that I know nothing about it. What do you mean by the thing "in itself," apart from the thing as it appears? How do you know that there is any thing "in itself," as distinguished from the phenomenal thing? This "in itself" is simply a word-ghost which has been

allowed to make a great deal of disturbance, but which vanishes when interrogated. Our claim, then, is, that what we see in things is really in them, and that a denial of this truth leads inevitably to what Mr. Spencer calls the "insanities of idealism." His claim that it is impossible to get rid of the consciousness of "an actuality lying behind appearances," and that "from this impossibility results our indestructible belief in that actuality, (p. 97,) will in no wise save him from the abysses. We have an irrepressible belief that we see things as they are; and if we could get rid of one belief, we could easily get rid of the other. The law of thought which warrants the existence of a thing, warrants also the assertion of something about it. The fundamental reality must either come into knowledge, or go out of existence.

But in insisting upon the validity of our knowledge of matter, it is not meant that we know all about it. As we have seen, all knowledge implies both a thing to know, and a faculty for knowing it. For sight or sound, there must be both the external vibration and the adapted organ. It is very credible that new senses, or even an intensifying of our present faculties, should reveal to us properties now unknown. An eminent physicist has remarked, that the air still retains every sound intrusted to it since the beginning, and that could our hearing be made more acute we might recover again every sound and word that has ever floated out on the airy tides. All about us

there may be forms of being and of beauty, and melodies of unknown harmony, all unseen and unheard, because they do not come within the range of our present powers. Matter may have a million aspects of which we can form no idea ; of these we say nothing. But whatever sides it may or may not have, it certainly has those which we see. To be sure, we know only phenomena or appearances—two words which are saturated with illusion—but then things appear as they are, and not as they are not. Indeed, why should it not be so ? Why not perceive the very thing, instead of some phantom which has no likeness to it whatever ?

The same general observation is to be made concerning the laws of pure thought, to which this same form of relativity has been applied. We always think things in certain relations, as one or many, as substance or attribute, as cause or effect, as necessary or contingent. These are the categories, the necessary affirmations of the human mind. They constitute the foundation of our knowledge, and the law of all our thinking. But the know-nothing says that these, while true for us, may not be true for other orders of being. I admit that they may be unknown, and hence inapplicable to other intelligences, who may think things in altogether different relations ; but our categories cannot be false for them unless they know them. A thing of which one has no knowledge is neither false nor true for him, but

simply unknown. Philosophy would have been saved a great deal of confusion on this point had it been kept in mind that false and true apply only to the known. The intuitional philosopher, assured of the essential truth of the categories, affirms with great earnestness that they are true for all possible intelligence. But it is by no means impossible that other order of intelligence should think things in entirely different relations ; and the nescientist, perceiving this, denies the claim of the intuitionist. Now, the proper claim is not that our categories are the categories of all thought, but that they are essentially true. If these hypothetical beings—in whose existence I have not much faith—can understand the meaning of our categories, it is impossible that they should perceive them to be false. There may be beings without the idea of number, and to them the equation $3 \times 2 = 6$ would present no idea whatever, and hence would be neither false nor true, but unintelligible. But for all who have the idea of number, $3 \times 2 = 6$ every-where and always. Mr. Mill gravely suggests that $2 + 2 = 4$ for us, but it is very possible that in some other world $2 + 2 = 5$. It is possible that, in such other world, the equation should be meaningless ; but if the inhabitants have a knowledge of numbers, we insist that it requires much less faith to believe that $2 + 2 = 4$ than to believe Mr. Mill's equation. "What presumption !" says the know-nothing ; "do you mean to say that the laws of our thought are true for

all intelligence?" In the sense explained, I mean precisely that; and which, I ask in return, is the greater presumption, to teach that $3 \times 2 = 6$ every-where and always, or to stultify one's self by teaching that in some corner or cranny of the universe, and for some transcendent intelligence, $3 \times 2 = 77$? There may be beings whose thought-processes compare with ours as the speed of lightning with the pace of the snail; but the conclusions we reach in our slow advance are as true as theirs, though grasped with the swiftness of light. We refrain from imposing our categories upon other beings, but insist that they are, nevertheless, true. To deny this is to commit intellectual suicide, to identify light and darkness, cosmos and chaos, being and blank.

Thus far Mr. Spencer has established nothing which could not have been admitted beforehand. He has laboriously proved two truisms: first, that all our knowledge must be related to our faculties; and second, that being, without attribute or power or manifestation of any kind, is unknowable; both of which may be admitted without at all impairing the fact that what knowledge our faculties do give us is objectively real. If, however, he chooses to deny this, then, as we have seen, his only landing-place is absolute idealism, which Mr. Spencer says is insanity. As between religion and science, his argument thus far tells with equal force against both. Religion involves unthinkable ideas, which fact Mr. Spencer

looks upon as sufficient warrant for banishing it to the outer darkness of the unknowable. But science also involves equally unthinkable ideas, and must, therefore, go along with religion. God, as self-existent, is an untenable hypothesis. The fundamental reality must also be conceived as self-existent, and hence must be set down as an untenable hypothesis.

But Mr. Spencer has other arguments against the validity of religious knowledge; and though he has utterly failed to establish nescience in science, he may possibly make it out in religion. The peculiar nature of the problem offers abundant opportunity for lofty tumbling, and Mr. Spencer avails himself of the chance to exhibit some of the most astonishing acrobatic feats that philosophy can boast of. The question is, Is God an object of knowledge? the fundamental proposition upon which the argument is based is, That God must be conceived as first cause, infinite, and absolute; and the claim is, that these three conceptions land us in bogs of contradiction in which the speculative intellect can only flounder and smother and perish. Mr. Spencer quotes from Mr. Mansel as follows:

“But these three conceptions, the cause, the absolute, and the infinite, all equally indispensable, do they not imply contradictions to each other, when viewed in conjunction as attributes of the same being? A cause cannot, as such, be absolute; the

absolute cannot, as such, be a cause. The cause, as such, exists only in relation to its effect: the cause is a cause of the effect; the effect is an effect of the cause. On the other hand, the conception of the absolute implies a possible existence out of all relation. We attempt to escape from this apparent contradiction by introducing the idea of succession in time. The absolute exists first by itself, and afterward becomes a cause. But here we are checked by the third conception, that of the infinite. How can the infinite become that which it was not from the first? If causation is a possible mode of existence, that which exists without causing is not infinite; that which becomes a cause has passed beyond its former limits."

Before continuing the quotation let us ask one or two questions. If "the conception of the absolute implies a possible existence out of all relation," not a necessary, but a possible existence apart from relation, in what is its absoluteness impaired if it should become a cause? Would the possibility of its separate existence be any the less? Would its independence, which is its true absoluteness, be at all impaired? Certainly not; and the whole of this confusion falls to the ground. But Mr. Spencer continues his quotation:

"Supposing the absolute to become a cause, it will follow that it operates by means of free-will and consciousness. For a necessary cause cannot be conceived as absolute and infinite. If necessitated by

something beyond itself, it is thereby limited by a superior power; and if necessitated by itself, it has in its own nature a necessary relation to its effect. The act of causation must therefore be voluntary, and volition is only possible in a conscious being. But consciousness, again, is only conceivable as a relation. There must be a conscious subject, and an object of which he is conscious. The subject is a subject to the object; the object is an object to the subject; and neither can exist by itself as the absolute. This difficulty, again, may be for the moment evaded by distinguishing between the absolute as related to another, and the absolute as related to itself. The absolute, it may be said, may possibly be conscious, provided it is only conscious of itself. But this alternative is, in ultimate analysis, no less self-destructive than the other. For the object of consciousness, whether a mode of the subject's existence or not, is either created in and by the act of consciousness, or has an existence independent of it. In the former case the object depends upon the subject, and the subject alone is the true absolute. In the latter case the subject depends upon the object, and the object alone is the true absolute. Or if we attempt a third hypothesis, and maintain that each exists independently of the other, we have no absolute at all, but only a pair of relatives; for co-existence, whether in consciousness or not, is itself a relation."—P. 39.

I have often wondered whether Mr. Mansel when he wrote this, or Mr. Spencer when he quoted it, was really serious or not. For, with the exception of Mr. Mill's famous conclusion that matter is an affection of mind, and mind a product of matter, this is the finest specimen of amphibious logic I have ever met with. Mr. Spencer begins by assuming that there is an absolute, and ends by telling us that there is no absolute: "for co-existence, whether in consciousness or not, is itself a relation." From this, the conclusion is irresistible that there is now no absolute in the universe, and never will be until God has cast all created being back into nothingness. For we exist; God co-exists, and hence is not absolute at present, but relative. But if this thing which can only exist alone be the true absolute, Mr. Spencer is very right in saying that we cannot know it. For it is plain that the absolute cannot be *this* absolute, until we have become non-existent; and then there would be very grave obstacles to our pursuit of knowledge.

But the absolute with which Mr. Spencer began the paragraph is one that can co-exist with the relative, at least we must suppose so; for it is incredible that he meant to waste all this argument on a non-existence. The conception of this absolute, he says, "implies a possible existence out of all relation." Mark, not a necessary, not even an actual existence apart from relation, but a possible one; that is, an existence dependent on nothing else. This absolute

we cannot know because of the hostility of the idea of a first cause.

Now why do we affirm absolute being at all? Only as the support of contingent or related being. What kind of an absolute do we affirm? Not one out of all relation, but out of necessary or dependent relation. Mr. Spencer recognizes this in his definition, and forgets it in his application. In the definition it is what holds no necessary relation. "Its conception implies a possible existence apart from all relation." In the reasoning it becomes that which must exist apart from all relation, as in the example quoted: "co-existence, whether in consciousness or not, is itself a relation." Now the absence of restriction, not the absence of relation, is the characteristic of the only absolute that can be rationally affirmed. The only absolute being that we know is found in causal connection with the universe, and is affirmed for the sole and single purpose of supplying a landing-place for our thought. We rise to that being by the law of causation; but, forsooth, we cannot leave it by the same law. This absolute of Mr. Spencer's is the veriest ingrate: it owes its existence to the law of causation—for we should never affirm an absolute, except as the support of related being—and now, like some naughty children, it refuses to acknowledge its parentage. At the bare mention of cause, it begins to bristle up, puts on airs, and declares that, being absolute, it knows nothing about 'causes. The fact

is that this absolute, which Hamilton, Mansel, and Spencer have conjured up, is a myth of their own imaginations, and has no other existence. Philosophy has allowed itself to be browbeaten, and knowledge has disowned itself, at the bidding of a non-existence. All the arguments of these doughty philosophers about the incompatibility of the conceptions of the absolute and the first cause are reduced to idle words, by the fact that the only absolute in which there is the slightest reason for believing, is known as the first cause. Of course, such an absolute God will be in relation to his universe, and hence will be knowable, for the relative is conceded to knowledge.

Hamilton and Mansel taught that our conception of the absolute is purely negative. Mr. Spencer seeing that this view must lead to a negation of the absolute, since a negative conception can represent nothing positive, sets himself to oppose it. In so doing he comes very near the true doctrine of the absolute, but in saving the doctrine he makes sad work with his philosophy. He says :

“ Our conception of the relative itself disappears if our conception of the absolute is a pure negation. . . . It is admitted, or rather contended, that the consciousness of a relation implies a consciousness of both the related members. If we are required to conceive the relation between the relative and the non-relative, without being conscious of both, we are

in fact required to compare that of which we are conscious with that of which we are not conscious—the act itself being an act of consciousness, and only possible through a consciousness of both its objects. What then becomes of the assertion that ‘the absolute is conceived merely by a negation of conceivability,’ or as ‘the mere absence of the conditions under which thought is possible?’ If the absolute is present in thought only as a mere negation, then the relation between it and the relative becomes unthinkable, because one of the terms of the relation is absent from consciousness. And if this relation is unthinkable, then is the relative itself unthinkable for want of its antithesis, whence results the disappearance of all thought whatever.”—P. 91.

Mark, we are forever told that we can never be conscious of the absolute. “It is thus manifest that a consciousness of the absolute is equally self-contradictory with that of the infinite.” “It is thus manifest that, even if we could be conscious of the absolute, we could not possibly know that it is the absolute; and as we can be conscious of an object, as such, only by knowing it to be what it is, this is equivalent to an admission that we cannot be conscious of the absolute at all.” “As an object of consciousness, every thing is necessarily relative.”—P. 78. In the argument just quoted, however, its necessary existence in consciousness is insisted upon. We must have a consciousness of the abso-

lute, or all thought is impossible. We are told, too, that the absolute cannot enter into a relation. But here we learn that, unless it is known in relation and antithesis to the relative, there is no thinking possible. I yield the point ; the reasoning is too cogent for resistance. I believe with Mr. Spencer that our thinking goes in pairs, as finite and infinite, relative and absolute ; and that these appear and disappear together. But this makes the absolute a relative, cancels the alleged nescience, and brings it once more within the domain of thought and knowledge.

All this is the sheerest jugglery ; it is not argument, but logical thimble-rigging. God is related to the universe, and in such relation we are not even forbidden to know him. Of what use, then, to tell us that, apart from all relation to his creation, we could not know him ? If there were no other being than God, we, being non-existent, could not know him. If God were all alone in a mighty void, without any manifestation of power, wisdom, or character, no more a being than a blank, indifferently existent and non-existent—for to deny the absolute the power of becoming non-existent would be a limitation—then I grant that we could never know him, and would not care to know him. But what does this amount to ? It is a labored attempt to prove that in eternal darkness there would be no light, and no sound in everlasting silence. This most petty, pitiful, and barren conclusion is all that is reached ; while the

unhappy looker-on, entangled in verbal confusions, and dazzled with a show of logic and science, is left to infer that we know nothing of God, or his will concerning us. The God who has revealed himself in the universe, the author of its glorious beauty, the preserver of its eternal order, the infinite purity and holiness, this God we are permitted to know, and with this we can be content. The living God of the Bible is left us ; the sleeping Brahma of the know-nothing, we cheerfully resign to the worshiper of the absolute.

But, finally, God is infinite, and hence we cannot know him. Mr. Spencer has some argument on this head which must be noticed. As in the case of the absolute we remarked a perpetual shuffling from one definition to another, so here there is a constant shifting from the metaphysical infinite, which is the all, to an infinite which can co-exist with the finite. In a passage already quoted, Mr. Spencer says, "If causation is a possible mode of existence, then that which exists without causing is not infinite." There is no end to the absurdities that could be evolved by employing the principle of this argument. Thus there are degrees of activity, and as long as the highest degree is not maintained, the possibilities of action are not filled up, and the infinite is not the infinite. The infinite, then, must always be infinitely active, upon pain of losing its infinity. Thus, not only would the infinite have its hands full to keep

up with its work, but we are met with another difficulty: that which is compelled is in subjection, and hence cannot be infinite. In spite of its infinite efforts it would be forced to take a back seat, and allow the compelling principle to assume the throne. But, not to repeat the same process with the second infinite, we are met by still other difficulties; this same argument can be used to show that any being which does not include in itself all other beings, and all evil, however vile, is not infinite. Envy and malice, and all the depths of iniquity, are possible modes of existence. Are we to conclude, then, that a God who is not envious and malicious is not infinite? At all events, it would be a blessing not to know such an infinite. Again, if the infinite includes all being, it includes us also; in which case, since we belong to the infinite, there seems to be no reason why we should not know the infinite. Or, possibly, the infinite is the only reality, and we are shows and shadows; in which case the question disappears into zero along with us. There is no end, I say again, to the absurdities that may be evolved by employing the principle of Mr. Spencer's argument.

When we inquired after the origin of our idea of the absolute, we found that Hamilton and his followers had been busying themselves with a myth of their own fancy, in whose actual existence there is not even the shadow of a reason for believing. To put all their arguments to rout, it was only

necessary to inquire what kind of an absolute the mind really does affirm. So in the case of the infinite, the argument is altogether about a nonentity. The metaphysical infinite to which Mr. Spencer's reasoning only applies is but a fancy of the metaphysicians. All knowledge assumes the reality of self. If we are not sure of our own existence we are sure of nothing. We are sure, too, that we are ourselves, and not some other. Now any doctrine which traverses these certainties breaks down the possibility of any knowledge. If we can be deceived in these things, we can be sure of nothing whatever. Now the metaphysical infinite about which Mr. Spencer is reasoning, does just this thing. Either we lose our personality in the infinite, or we lose it in zero; we are merged into the infinite, or we vanish into the void; and either alternative makes all knowledge impossible. The very affirmation of such an infinite is suicidal. The moment that it is made all our beliefs become untrustworthy, and all argument must cease. And yet we have great philosophers, like Hamilton, constructing this elaborate contradiction, and then parading the thing about as beyond the scope of knowledge. And philosophy turns pale, and religion takes its flight, at the bidding of this wretched metaphysical abortion. The only infinite being in whom there is any warrant whatever for believing, is one whose notice nothing can escape, and whose power nothing can defy;

whose years are eternal, and whose wisdom comprehends all being. This is the only infinity that can be rationally attributed to God. I grant, nay, insist, that God is not metaphysically infinite. If, however, any one feels aggrieved at this claim, he is at liberty to go into mourning over his miserable abstraction as soon as he pleases. Common minds cannot understand, much less sympathize with, so profound a grief. Now, against the knowledge of such an infinite as I have mentioned, there is not a word of valid argument in all that has been written on this subject. The God who upholds all things by the word of his power, and rules in heaven and in earth, is conceded to our knowledge. All that is made out is that if God were every thing and we nothing, our pursuit of knowledge would be very much embarrassed.

However, not to rest too much on my own representation, I shall allow Mr. Spencer to argue his own case. Against a knowledge of the infinite, he urges the following difficulties :

“The very conception of consciousness, in whatever mode it may be manifested, necessarily implies distinction between one object and another. To be conscious, we must be conscious of something ; and that something can only be known as what it is, by being distinguished from that which it is not. But distinction is necessarily limitation ; for if one object is to be distinguished from another, it must possess some form of existence which the other has

not, or it must not possess some form which the other has. But it is obvious that the infinite cannot be distinguished from the finite by the absence of any quality which the finite possesses, for such absence would be a limitation. Nor yet can it be distinguished by the presence of an attribute which the finite has not; for, as no finite part can be a constituent of an infinite whole,¹ this differential characteristic must itself be infinite, and must at the same time have nothing in common with the finite. We are thus thrown back upon our former impossibility; for this second infinite will be distinguished from the finite by the absence of qualities which the latter possesses. A consciousness of the infinite, as such, thus necessarily involves a self-contradiction; for it implies the recognition, by limitation and difference, of that which can only be given as unlimited and indifferent."—P. 76.

This argument relates only to that metaphysical infinite, which we have already seen to be a myth, and which therefore needs no further notice. One of the great fallacies of this philosophy, however, appears here—that to know things by distinction and difference is a mental weakness. Now, I do not like to be presumptuous; but, with all deference to the great philosophers who have held this view, I must think that the reason why we know things by difference is that they are different. If they differed not in attribute, nor in space, nor in time, they would be the same. This

power of knowing things apart is a weakness, is it? Are we to suppose, then, that there is some absolute or transcendent intellect which sees all things alike, detecting no difference between yes and no, good and evil, being and blank? Such a thing would be, not absolute intelligence, but absolute insanity. Because we are not thus highly gifted, it is held that we cannot know the infinite ! .

But, for the sake of progress in the argument, let us grant that we cannot reach the infinite ; still, before the impossibility of communion is affirmed, another question must be considered : Can the infinite reach us? This is a question which Mr. Spencer entirely ignores. Intent only on casting opprobrium upon the human faculties, he forgets that, at the same time, he is charging inabilities upon the infinite too. The moment we read the question in this order, all Mr. Spencer's arguments turn traitor, and fire into his own ranks. Inasmuch as the infinite includes all possibilities, it of course includes the possibility of self-revelation. Mr. Spencer is often praised for his "severe logic," and I have even seen him styled a "modern Aristotle" by some enthusiastic admirer ; but I confess that passages like the following stagger me: "But it is obvious that the infinite cannot be distinguished, as such, from the finite by the absence of any quality which the finite possesses, for such absence would be a limitation."—P. 77. On reading this I took heart ; the infinite is all that

the finite is, and more. It is their living, conscious intelligence. It is, too, a free mind like our own. In it abide all thoughts of beauty, and all love of good. One phase of the infinite lies over against our finite nature, and runs parallel with it; and through that phase the finite and the infinite can commune. All these beliefs I based upon Mr. Spencer's declaration. But my satisfaction was short-lived. On page III, the claim that "the universe is the manifestation and abode of a free mind like our own," is given as an illustration of the "impiety of the pious." Is it possible? Why, have we not just learned that the infinite must have all that the finite has? Is this the "severe logic" of the "modern Aristotle?" I wonder what the ancient Aristotle would have said to this! The infinite must be every thing; yet, to say that it is living, conscious intelligence is the vilest fetichism. It must possess all power and transcend all law, yet has not the power of revelation. Able to sow space with suns and systems, to scatter beauty broadcast like the light, to maintain the whole in everlasting rhythm; but utterly unable to reach the human soul! Mr. Spencer has much to say about contradictions; let the reader judge whose is the contradiction here. By his own reasoning he is involved in the most perfect dilemma possible: if God be infinite he can reach us; if not infinite we can reach him. In either case communion is possible.

But here, as in the case of matter, while insisting upon a real knowledge of God, I am very far from claiming a complete one. Religion does not pretend to give a rationale of the Divine existence any more than of our own. The mystery of existence is equally insoluble in both cases; and some facts, not some explanations, are all that can possibly be given. "Who can search out the Almighty to perfection?" has been the language of the best religious thinkers from the time of Job until now. As little, if not less, patience is due to those geographers of the Divine nature who know every thing, as to the know-nothing who leaves us in total ignorance. All that is claimed is that we have a real, though finite, knowledge of the Deity—not an infinite thought, but a finite thought about the infinite, which, like the infinite series of the mathematician, is true as far as it goes, though carried to only a limited number of terms. All our science and all our theology are but the slightest surface-play on the bosom of fathomless mystery; but this is a very different thing from saying that what we do know is untrustworthy. Measureless mystery wraps us round, and gulfs of nescience yawn on every side, but what we do know is sure. The little island of knowledge, though washed on every side by the boundless ocean of the unknown, is still anchored in reality, and is not a cloud-bank which may at any moment disappear into the void. This

is our claim, and its denial can only result in "the insanities of idealism."

But it is time to bring this discussion to a close. We have met with laborious proofs of truisms, and have wandered through mazes of paralogisms which have disappeared upon accurate definition. Nothing has been made out that could not have been admitted beforehand. The argument has been made up of "words, words, words"—of words either without meaning, or with a totally false one. The terms absolute and infinite, upon which so much reliance is placed, are found upon examination to totally repudiate the meaning put upon them. I shall give one more quotation from Mr. Spencer's discussion of the unknowable, and it is a fit companion to the confusions already noticed. There is an old satire often urged against religion; so old, indeed, that what little point it ever had has been lost for ages. It runs back to the time of Xenophanes, and has been repeated in various ways ever since. Xenophanes used oxen and lions for comparison. Mr. Theodore Parker improved on this, and introduced the novelty of a buffalo. He supposes that a buffalo, arguing as the natural theologians do, would conclude that God has horns and hoofs. I have even known a mole to be used to illustrate this powerful irony. Of course the ingenious and witty conclusion was that a mole could only argue to a God with fur and paws. Mr. Spencer

believes that "volumes might be written on the impiety of the pious," and he accordingly proceeds to lash said impiety by dressing up the old satire in this form :

"The attitude thus assumed can be fitly represented only by developing a simile long current in theological controversies—the simile of the watch. If for a moment we made the grotesque supposition that the tickings and other movements of a watch constituted a kind of consciousness, and that a watch possessed of such consciousness insisted upon regarding the watchmaker's actions as determined, like its own, by springs and escapements, we should only complete a parallel of which religious teachers think much. And were we to suppose that a watch, not only formulated the cause of its existence in these mechanical terms, but held that watches were bound out of reverence so to formulate this cause, and even vituperated as atheistic watches any that did not so venture to formulate it, we should merely illustrate the presumption of theologians by carrying their own arguments a step further."—P. 110.

This is extremely severe, no doubt ; and if theologians taught that God has legs and arms, parts and passions, the satire might have some point ; but since they expressly forbid such an assumption, it is difficult to tell where the force of the "grotesque supposition" lies. For if that philosophical buffalo, that ingenious mole, and that "grotesque" watch,

should argue, not to horns and hoofs, fur and paws, "springs and escapements," but to intelligence in their maker, they would not be very far astray. If this thinking, conscious watch should infer that it had a thinking, conscious maker, it would be on the right track. Only remember that religion does not attribute organs and form to God, and the logical value of the "grotesque supposition" is all gone; though, to be sure, the wit remains to please us. And now that Mr. Spencer has kindly developed the simile, I know not that his own attitude can be more fitly represented than by its further development. Suppose that this grotesque watch should turn know-nothing, and insist that a belief in a thinking, conscious watchmaker is fetichism, and should begin to "vituperate" all watches who were stupid and superstitious enough to believe in a watchmaker, instead of adopting the higher and truer view that watches evolve themselves from the unknowable by changing "from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity, through continuous differentiations and integrations;" why clearly the watch would make a fool of itself, especially if it "vituperated" at any great length. And all this but illustrates Mr. Spencer's presumption by carrying his own argument a step further. I mean no disrespect to Aristotle, either the ancient or the modern; but I must think that, until this metaphorical watch turned know-nothing, and began to vitu-

perate its simpler neighbors, it ticked off better logic than Mr. Spencer has done.

My excuse for this long and dry discussion is the religious importance of the question. The only important bearing of the nescience doctrine is a religious one. Science would go on in just the same way as at present, collecting and coördinating its facts, though the facts were proved to be phantoms. Common life would experience no change. The most thorough-going know-nothing would be as eager to get bread as the realist; he would be as careful to keep out of a relative fire or a relative river, as out of an absolute one. In all these cases the practical necessity would override the speculative error.

But it is not so in morals and religion. There we are not forced to act; there we are constantly seeking some excuse for inaction. Even the suspicion that our religious ideas are delusions leads to a speedy relaxation of moral effort; as they know too well who have at any time made nescience their theology. To declare our knowledge imperfect and inadequate, is admissible; but to declare it utterly false, is fatal to religion. It is useless to leave us our religious ideas as regulative truths—that is, things good for us to believe, but without foundation in fact. A regulative truth will regulate until one discovers the fraud; but he must have very little knowledge of human nature who imagines that it will have any authority after the trick has been found out. These

gleams of good that sometimes visit us, these occasional intimations of a solemn beauty and a perfect purity, these undying suspicions of conscience which we have fancied are tokens of a will and holiness more august than our own—all these things, which we thought point upward to God, are found to point nowhere, and are but magnificent will-o'-the-wisps. Why pursue them? It might be safe to follow them, but it might also be dangerous. Who can tell into what bogs they may lead and leave one? The only rational thing to do is to ignore them. Proved to be phantoms, they shall delude us no longer. No, out of this blank abyss of total darkness, neutral alike to good and evil, no inspiration of the soul can come. Religion cannot live on nescience, and reverence is impossible toward a blank. Though, to be sure, we now see through a glass darkly, yet the image there discerned must not be wholly distorted. As we think of the infinite past and the infinite to come, it becomes plain that there is much in the Infinite One which we can never hope to understand, but upon which we can only gaze; yet must not all be wrapped in shadow; something must pierce through to the sunlight and the clear blue. In contemplating Him we shall ever be as men watching in the darkness of early dawn, with a deep sense of awe and mystery pressing upon us; still there must be some glow upon the hill-tops and a flush in the upper air. There must, indeed, be a solemn silence that reverence

may bow low and worship ; but there must also be a voice which we can trust, bidding us be not afraid. The absence of either of these elements would lead, I believe, to the decay of all true religion. In the God who commands our reverence and our loving worship, there must be mystery, and there must be manifestation.

CHAPTER III.

LAWS OF THE KNOWABLE.

THE "Laws of the Knowable" constitute Part II of Mr. Spencer's First Principles. Part I has already been examined, and its principles have been found to be self-destructive. We have now to inquire whether Part II is any more worthy of the high reputation it has acquired.

Part II has a very ambitious aim. It is, in brief, an attempt to rewrite the book of Genesis on the *à priori* plan, and from a scientific stand-point. Having in Part I safely landed all absolute knowledge, including the knowledge of God, in the realm of the unknowable, Mr. Spencer next proceeds to show, by reasoning on our ideas of matter and force, and by generalizations from known scientific laws, how the universe, including both life and mind, has necessarily evolved itself from the primitive star-dust, and that, too, without any guiding intelligence. Assuming the existence of a diffused nebulous matter, and admitting the validity of our ideas of matter and force, the cosmos must have become what it is. Mr. Spencer not only attempts to support this proposition, but also to exhibit the method by which the primal cloud-bank, without any directing mind, has

spun and woven itself into a universe which seems a miracle of design. The scheme is certainly a bold one, and demands unbounded confidence in logical architecture. When Mr. Darwin presents his limited doctrine of the origin of species, we feel that there is an enormous disproportion between the vast conclusion and the scanty evidence; but when the problem is to give an *à priori* recipe for the universe, this feeling is greatly increased. Nothing but a very secure set of first principles can justify such a procedure. If these have the slightest parallax with the truth, the conclusions based upon them will be utterly untrustworthy at the distances to which he extends them. But let us judge nothing beforehand.

Mr. Spencer evidently feels relieved at escaping from the darkness of the unknowable into the daylight of the knowable. His subterranean gropings fettered his free movement, and it is with a sigh of relief that he emerges again into the upper air. The "pseud-ideas" are all safely locked up below, and a permanent injunction has been placed upon religion. No more trouble is to be expected from that quarter, and science has the field to itself at last. But no sooner does Mr. Spencer begin his scientific discussion, than it clearly appears that he has not left all the "pseud-ideas" in the dungeons below, but has smuggled a few of them over the borders of the knowable for his own private use. Or, possibly, he believes with Emerson, that "a foolish consistency is

the bugbear of weak minds." At all events, in writing Part II he is at no pains to remember the philosophical principles established in Part I. In Part I we learn that a self-existent creator is an untenable explanation of the universe, because self-existence is rigorously inconceivable. And why inconceivable? Because "self-existence necessarily means existence without a beginning; and to form a conception of self-existence is to form a conception of existence without a beginning. Now, by no mental effort can we do this. To conceive existence through infinite past time implies the conception of infinite past time, which is an impossibility."—P. 31. The impossibility here affirmed is one insisted upon by Hamilton, and, before him, by Hobbes; but I must confess that, upon a most diligent examination of our conceptions, I am unable to detect the alleged difficulty. The force of the argument lies altogether in the false assumption that nothing is entitled to the rank of knowledge, which will not come before the representative faculty. But, not to insist upon this, see how Mr. Spencer answers himself. Infinite time is an impossible conception, and any idea or doctrine which implies it, must be regarded as something "pseud." Yet as soon as God and religion are committed to prison on the strength of this warrant, he tells us with undoubting assurance that matter is unoriginated. But if so, then matter must have existed through infinite past time. The conception, then, of

unoriginated matter implies the conception of infinite past time. "Now, by no mental effort can we do this. To conceive existence through infinite past time implies the conception of infinite past time, which is impossible."—P. 31. I yield to the cogency of the reasoning, and admit the eternity of matter to be an untenable hypothesis, a "pseud-idea." Mr. Spencer is equally sure that matter and force are indestructible, both "persist." These are first principles, and much space is devoted to their exposition. But if matter and force are indestructible, they must exist through infinite future time; and the conception of their indestructibility really involves the conception of infinite future time. "Now by no mental effort can we do this," etc. So then Mr. Spencer's leading doctrines concerning matter and force are condemned by his own metaphysics as untenable hypotheses, involving "symbolic conclusions of the illegitimate order."

As a kind of bar to this criticism, he says: "Whatever may be true of matter absolutely, we have learned that relatively to our own consciousness, matter never comes into existence nor ceases to exist."—P. 239. This, however, in no wise assists him, for in his plea against idealism he assures us that, though we do not know the absolute reality, the relative reality which we do know stands in fixed connection with it. "Thus, then, we may resume with entire confidence the realistic conceptions which philosophy at first sight seems to dissipate. Though reality under

the forms of our consciousness is but a conditioned effect of the absolute reality, yet this conditioned effect, standing in indissoluble relation with its unconditioned cause, and equally persistent with it so long as the conditions persist, is, to the consciousness supplying those conditions, equally real. The persistent impressions being the persistent results of a persistent cause are, for practical purposes, the same as the cause itself, and may be habitually dealt with as its equivalent."—P. 229. As, then, the connection is indissoluble, while the relative reality persists the absolute reality must persist also; and as the relative reality, matter, never begins nor ceases to exist, it follows that the absolute reality never begins nor ceases to exist. Now a Divine existence is incredible, because it involves the conception of infinite time; this is the very reason alleged for condemning the belief in a self-existent creator as an untenable hypothesis. Yet here are doctrines which, though involving the same impossible idea, are dealt with as first truths. It is impossible to overestimate the convenience of a double-faced logic like this. I submit that Mr. Spencer must either recall his sentence of banishment against the Deity, or else consign his own most fundamental doctrines to the limbo of "pseud-ideas."

Mr. Spencer is not only a scientist, he is also a metaphysician. As a consequence, he is fond of representing laws which have been discovered only

by long and patient induction, as discoverable by *à priori* cogitation. Thus the indestructibility of matter, the continuity of motion, and the persistence of force, are declared to be *à priori* truths of the highest certainty. It is a fashion with him to close a chapter by pointing out that the contained doctrine is really an *à priori* truth; or, at least, a necessary corollary of some *à priori* principle. This is, indeed, a necessity of his system. No possible amount of experiment and induction would avail to prove these doctrines for all time and space; and unless they can get some *à priori* support, they must present a sorry figure in so great a field. Indeed, these doctrines, as Mr. Spencer points out, are incapable of inductive proof. Matter can be proved indestructible only by assuming the persistence of force, and force can be proved persistent only by assuming matter to be indestructible. The argument is circular, and hence, worthless; one or the other of these doctrines must be based upon *à priori* considerations. Throughout this philosophy, fact is necessarily subordinate to theory. Out of a universe of phenomena only a few can be placed in the witness-box, and who knows but that only the most pliable have been subpoenaed? The panel is very large, and possibly the jury may be packed. Unless the metaphysical principles are very secure, such a suspicion will necessarily attach to a verdict based upon such scanty evidence. The facts adduced serve to give a scientific appearance to the work, but their

argumentative value is extremely small. It is to the underlying metaphysics that the doctrines must look for support. Yet I cannot but think Mr. Spencer singularly unsuccessful in his attempt to unite fact and philosophy. He does not seem, indeed, to have any just appreciation of the fact that contradictions cannot comfortably co-exist. In one place he tells us that a necessity of thought is no sign of a necessity of fact ; and then he offers a necessity of thought as the best possible proof of an external fact. Examine the following statements :

“ Our inability to conceive matter becoming non-existent is immediately consequent upon the nature of thought itself. Thought consists in the establishment of relations. There can be no relation, and, therefore, no thought framed, when one of the terms is absent from consciousness. Hence it is impossible to think of something becoming nothing, for the same reason that it is impossible to think of nothing becoming something—the reason, namely, that nothing cannot become an object of consciousness. The annihilation of matter is unthinkable for the very same reason that its creation is unthinkable ; and its indestructibility thus becomes an *à priori* cognition of the highest order.”—P. 241. To the objection, that most men do believe that matter is destructible, he replies that most men do not really think, but only think that they think. “ And if this obliges us to reject a large part of human thinking as not thinking

at all, but merely pseudo-thinking, there is no help for it."—P. 243. An explanation bordering on the heroic.

This reasoning, which is repeated in proof of the persistence of force, amounts to this: what we cannot conceive is impossible. We cannot conceive either creation or annihilation, hence they are impossible.

Let us ask Mr. Spencer to answer himself again. Turning to the chapter on "Ultimate Scientific Ideas"—a miscellaneous collection of metaphysical puzzles—we learn that inconceivability is no test at all of truth. That matter is infinitely divisible, we are told, is an impossible conception. That it is not infinitely divisible, is declared equally irrational. Now, as it must be one or the other, it follows that the inconceivable is not the impossible.

Again, the supposition that matter is absolutely solid is shown to be inconceivable. The converse is equally inconceivable. But as one of the suppositions must be true, it again appears that inconceivability is no test of truth.

Reasoning upon consciousness he says: "Hence, while we are unable either to believe or to conceive that the duration of consciousness is infinite, we are equally unable either to believe or to conceive that the duration of consciousness is finite; we are equally unable either to know it as finite, or to conceive it as infinite."—P. 63. Here is another proof that inconceivability is no test of the possible; for one of these suppositions must be true.

Yet more, not only is the inconceivable shown to be the possible, it is even the observable and the demonstrable. The transfer of motion, and the passage from motion to rest or from rest to motion, are mentioned as inconceivabilities of the first magnitude ; but they are nevertheless facts of hourly observation. The sphericity of the earth is another supreme inconceivability, and also an undoubted fact. That central forces should vary as the inverse square of the distance, is declared to be an inconceivability which passes all understanding ; it is also a fact of undoubted demonstration. Dozens of illustrations might be culled from this chapter, all showing the worthlessness of inconceivability as a test of truth. Now who would expect to find the author of this chapter basing his belief in any thing upon the inconceivability of the opposite ? Yet no sooner does Mr. Spencer get clear of the unknowable, than he finds it the best of proofs. The creation and destruction of matter and force are impossible because inconceivable. And this he offers as argument, after giving us page upon page of proof that inconceivability is no test at all of reality. Evidently Mr. Spencer, in his hurried flight from the unknowable, left either his memory or his logic behind him—or both.

As a rendering of the mental test, I cannot but think the inconceivability, which Mr. Spencer charges upon the belief in the creation and destruction of mat-

ter, to be one of the many psychologic forgeries which he has substituted for the true reading. Inconceivability is an ambiguous term. Some statements violate the law of our reason, others transcend our reason. To the first class belong all contradictions, such as that a thing can be and not be at the same time. Here, too, belong denials of the law of causation. To the second class belong inquiries about the inner nature of things, such as the questions: How does matter attract? what constitutes existence? The first class only are strictly inconceivable. Violating, as they do, the fundamental intuitions of the mind, as long as we have any faith at all in reason, we must believe these inconceivables to be impossibles. The second class is merely incomprehensible. How matter is constituted, how motion is transmitted, how force is exercised: these are not inconceivable, but incomprehensible. We have not the data, if we have the faculties, for such inquiries as these. A denial based upon an inconceivable of the first class is founded upon mental power; one based upon an inconceivability of the second class is founded upon mental weakness. Because of what the mind is, we declare all that denies our mental intuitions to be inconceivable. Because of what it is not, we declare all that transcends our intuitions to be inconceivable; but the first inconceivable represents an impossible, the second represents an incomprehensible.

Now if we examine the alleged inconceivability of

the creation and destruction of matter, we shall see that it is really an incomprehensibility and nothing more. It does not violate, it transcends the laws of our thought. For who has such knowledge of the inmost nature of matter, that he can positively deny that things seen were made from things not appearing. Who can prove that matter is not the result of a spiritual activity in space, which will disappear when the activity ceases? Who has so possessed himself of the central secret of material existence as to be sure that the world abides forever? We call the hills everlasting, and speak of the eternal stars; yet who can bring any proof whatever that Shakspeare was not right when he wrote:

“The cloud-capped towers, the gorgeous palaces,
The solemn temples, the great globe itself,
Yea, all which it inherit, shall dissolve,
And, like this insubstantial pageant faded,
Leave not a wreck behind?”

On the subject of causation, the mind has a very positive deliverance, but it has none whatever on this question; it is simply transcendental to our faculties. All we can say is, we cannot comprehend how creation or destruction is possible, but that they may be possible no one can deny. Yet Mr. Spencer uses this mental impotence as a sufficient test of objective reality. We cannot explain how a thing can be; hence, it cannot be. Part I loads our faculties with opprobrium; Part II constitutes them the measure, not merely of knowledge, but of existence. Part I

declares inconceivability worthless as a test of reality; Part II makes it the best of proofs.

But, leaving these contradictions to destroy each other, let us pass to the central point of this system, and indeed the central point of all, that styles itself the "New Philosophy"—the correlation of forces.

This doctrine necessarily holds the first place in every scheme of evolution; for if it cannot be maintained, there must be irreducible breaks in the reasoning. If the physical forces refuse to correlate with the vital, there would be no possibility of passing from the tossing whirlpool of flame, or the waste theater of rock and mud, which once constituted our earth, to organic existence. There would be an absolute necessity for some external power to introduce the new creation, or the inorganic would remain inorganic forever. In the same way, if the physical forces do not correlate with the mental, the evolutionist could not pass, by a continuous chain of cause and effect, from the ancient nebula to mind and its manifestations. But if, on the other hand, there should be such correlation, there would be a possibility of finding the present order potentially existent in the primeval mist. The possibility might be very slight indeed, but it would be sufficient to base an argument upon. When the earth cooled down to a temperature compatible with the existence of organization, the physical forces, in their restless and eternal

hide-and-seek, might chance upon organic combinations, and thus life, and finally mind, would be started upon their way; and when a beginning was once made, natural selection and time could be offered in explanation of all improvement. It is, then, of first importance to a philosophy which aims to educe life, mind, poetry, science, Milton, Plato, Newton, Raphael, every body and every thing, from a condensing mist, to make out this correlation. Let us see how the work is done.

In Mr. Spencer's proof of the correlation of the physical forces, the same ridiculous confusion of force and motion is apparent, which is so patent in all our works on this subject. Heat is a mode of motion and a mode of force, at the same time. Motion produces magnetism, magnetism is motion, magnetism is force, motion is force. The same is said of light and electricity: both are motions and both are forces. Yet the universal definition of force describes it as the hidden cause of motion or change. When pressed for a definition, there is no scientist who would view them in any other relation. To use cause and effect as interchangeable and identical, involves a most remarkable confusion of ideas. Yet Mr. Spencer is not alone in this error. I do not know a single scientist who has maintained the proper distinction between force and motion. It would be easy to fill pages with quotations from the writings of the most prominent scientists, all illustrating the same confusion. In truth, the majority

of scientific men do not understand the doctrine of correlation. Heat, light, electricity, etc., are not forces, but modes of motion, any one of which can produce all the rest. This passage of one mode of motion into another mode, is its correlation; but this correlation is a correlation of motions, and not of forces. Whether the hidden force or forces which manifest themselves in these several modes be one or more, is a question which no experiment can decide. To prove a true correlation of forces, it must be shown that the powers which maintain the chemical molecule and those which bind the members of the solar system together, are identical. The identity of cohesion, chemical affinity, and the force of gravitation, must be established—a thing which no one has done.

For the sake of progress, however, let us admit the unity of the physical forces. Do these correlate with the vital forces? What is the proof that vitality is a function of material forces? Mr. Spencer argues as follows:

“Plant life is all dependent, directly or indirectly, upon the heat and light of the sun—directly dependent in the immense majority of plants, and indirectly dependent in plants which, as the fungi, flourish in the dark; since these, growing as they do at the expense of decaying organic matter, mediate draw their forces from the same original source. Each plant owes the carbon and hydrogen, of which it mainly consists, to the carbonic acid and water in the surrounding air

and earth. The carbonic acid and water must, however, be decomposed before their carbon and hydrogen can be assimilated. To overcome the powerful affinities which hold their elements together requires the expenditure of force, and this force is supplied by the sun. In what manner the decomposition is effected we do not know. But we know that when, under fit conditions, plants are exposed to the sun's rays, they give off oxygen and accumulate carbon and hydrogen. In darkness this process ceases. It ceases, too, when the quantities of light and heat received are greatly reduced, as in winter. Conversely it is active when the light and heat are great, as in summer. And the like relation is seen in the fact that, while plant-life is luxuriant in the tropics, it diminishes in temperate regions, and disappears as we approach the poles. Thus the irresistible inference is that the forces by which plants abstract the material of their tissues from surrounding inorganic compounds—the forces by which they grow and carry on their functions—are forces that previously existed as solar radiations.

“That animal life is immediately or mediately dependent on vegetal life is a familiar truth ; and that, in the main, the processes of animal life are opposite to those of vegetal life, is a truth long current among men of science. Chemically considered, vegetal life is chiefly a process of deoxidation, and animal life chiefly a process of oxidation—chiefly, we must say,

because in so far as plants are expenders of force for the purposes of organization they are oxidizers ; and animals, in some of their minor processes, are probable deoxidizers. But, with this qualification, the general truth is that while the plant, decomposing carbonic acid and water and liberating hydrogen, builds up the detained carbon and hydrogen (along with a little nitrogen and small quantities of other elements elsewhere obtained) into branches, leaves, and seeds, the animal consuming these branches, leaves, and seeds, and absorbing oxygen, recomposes carbonic acid and water, together with certain nitrogenous compounds in minor amounts. And while the decomposition effected by the plant is at the expense of certain forces emanating from the sun, which are employed in overcoming the affinities of carbon and hydrogen for the oxygen united with them, the re-composition effected by the animal is at the profit of these forces which are liberated during the combination of such elements. Thus the movements, internal and external, of the animal are re-appearances in new forms of a power absorbed by the plant under the shape of light and heat. Just as, in the manner above explained, the solar forces expended in raising vapor from the sea's surface are given out again in the fall of rain and rivers to the same level, and in the accompanying transfer of solid matters, so the solar forces, that in the plant raise certain chemical elements to a condition of unstable equilibrium, are

given out again in the actions of the animal during the fall of these elements to a condition of stable equilibrium."—Pp. 271-273.

To this general proof he adds the following illustration: "The transformation of the unorganized contents of an egg into the organized chick is altogether a question of heat. Withhold heat, and the process does not commence; supply heat, and it goes on while the temperature is maintained, but ceases when the egg is allowed to cool. The developmental changes can be completed only by keeping the temperature with tolerable constancy at a definite height for a definite time; that is, only by supplying a definite amount of heat."—P. 273.

The gist of Mr. Spencer's argument is this. Without sunshine there can be no plant or animal life, hence sunshine and life are one. Without heat the chicken cannot be hatched, therefore heat and vitality are identical. Now surely it requires a great deal of faith to accept this argument as conclusive. At the most, it only proves the possibility of their identity, but it by no means establishes the fact. All that is really made out is that heat and light are necessary conditions of vital action; but surely the conditions of the action, and the power acting, need not be the same. Bricks and mortar are conditions of the builder's activity, but they are not the builder. The engine is a condition of steam's activity, but the engine is rarely the steam. Now if the

believer in vitality should choose to say that there is a constructive or directive force in the body, which, while separate from the physical forces, does use those forces as its agents in construction and function, what is there in Mr. Spencer's argument to disprove it? There is not one word which makes against such a hypothesis; yet he moves on apparently without a suspicion that any more proof is desirable, and tells us on the strength of this fallacy that "whoever duly weighs the evidence will see that nothing short of an overwhelming bias in favor of a preconceived theory can explain its non-acceptance." But if this is all the proof that Mr. Spencer has to offer, it requires no very critical eye to see where the "overwhelming bias" is. Whoever has proved the correlation of the physical and vital forces, Mr. Spencer has not; indeed, one who can thus confound the conditions of activity with the power acting, has not even understood the meaning of the problem, to say nothing of solving it.

But has any one proved this correlation? Is there, in any of the treatises on this subject, any thing which establishes the identity of the physical and vital forces? There is no end of assertion and imagination; but there is nothing which approaches a proof. Mr. Huxley tells us that protoplasm is the basis of life, and then says that life is the only known source of protoplasm; that is, the "basis" requires a living base. But since there is no life

without protoplasm, and no protoplasm without life, the question of priority becomes the parallel of the famous inquiry whether the hen produces the egg, or the egg the hen. If the question be left in this condition, it might be claimed with equal justice that life is the basis of protoplasm. It becomes necessary, then, to break the circle somewhere; and, accordingly, he tells us that, if we could have been present when the earth manifested extraordinary conditions, we might have seen protoplasm produced from the inorganic. This, and the further declaration that there is no telling what chemistry may do yet, is all that Mr. Huxley has to offer. One "might-have-been" and one "may-be," are the support of the great conclusion. Indeed, not even this much can be allowed him; for, though the doctrine is that protoplasm lives by virtue of its chemical combination, he unluckily admits that protoplasm may die, and often is found dead. Now, dead-life is decidedly good; but, if we are not prepared to believe in it, we must conclude that protoplasm is not life, but something into which life enters, and from which it may depart. Mr. Huxley's lecture in which he propounded this logical atrocity, taken along with the fright it gave some nervous people, constitutes a most brilliant example of the possibilities of "much ado about nothing." Pages of similar assertions might be gathered from the leading works on this subject, together with not a few contemptu-

ous expressions about the believers in vitality. The *odium theologicum* is a favorite charge against the theologians; but it really seems as if there is an *odium scientificum* which is not one whit more honorable. Dr. Beale, one of the first microscopists of the day, in an essay on the "Mystery of Life," complains as follows: "It is indeed significant, if, as seems to be the case at this time in England, an investigator cannot be allowed to remark that the facts, which he has demonstrated, and phenomena, which he has observed, render it impossible for him to assent at present to the dogma that life is a mode of ordinary force, without being held up by some who entertain opinions at variance with his own, as a person who desires to stop or retard investigation, who disbelieves in the correlation of the physical forces, and in the established truths of physical science."

Disregarding now all fancies and prophecies, what is really proved in the premises? What are the facts in the case?

A living organism manifests properties so different from those of inorganic matter, that, unless some plausible explanation can be found in the properties of the latter, we must assume some peculiar power, some distinct cause, to explain the variation. In the first place, organic compounds are all in a state of unstable equilibrium, which chemistry and mechanics are constantly seeking to upset. So long as life lasts, this equilibrium is maintained; as soon as it

ceases, the body is quickly reduced to more stable inorganic compounds. This looks as though life were not a function of chemical affinity and mechanical power, as the correlationists assert, but rather a force which is in direct opposition to them. Again, inorganic compounds have no identity apart from the atoms that compose them; living beings maintain their identity in the constant change of their composition. The body of to-day is not the body of last year, or even of yesterday, but it is the same living being. This looks as though there were a principle or power which abides in the organism, and renews its constant waste by an equally constant repair. Dead matter, too, grows only by accretion, and what is added to it gains no new properties; living matter grows by selective assimilation. One kind of matter goes to the muscles, another to bones, another to brain and nerves; and what is thus assimilated takes on new powers of which there was not the slightest hint before. This selective assimilation looks as though there were a selective power within.

In the different forms of life, too, we have different plans of development. The carbon, oxygen, hydrogen, and nitrogen which a fish assimilates, are built up into fish, and not into horse. This differentiation of identical elements into different forms of life, also looks as though there were something more than chemistry concerned in the matter.

Another peculiarity is that a living being, if

killed, cannot be made to live again ; dissolution is destruction. You may have the identical elements, and can mix them as you will ; you can heat them, or use magnetism or electricity, as long as you please ; the thing is dead and will not live. In this respect it differs from the crystal, that standing illustration of the unbelievers, which may be dissolved and reproduced at pleasure. But, not to mention other points of difference, the phenomena of carbon, hydrogen, oxygen, and nitrogen, where they appear in the organic world, differ entirely from their phenomena in the inorganic. Combine and treat them as we will, they give no hint of their organic powers. What is it, then, which bestows upon these elements their high prerogatives ? What is it which raises them to this upper plane ? Do they do it themselves ? or is there a mystic and subtle chemist in those little cells, who is the author of these inimitable wonders ?

The standing answer of the correlationists is, that the peculiar chemical combination explains the facts. We may not be able to detect the molecular interactions ; but if we could, we should undoubtedly find a complete explanation of vitality in the properties of the chemical elements. These elements in certain combinations manifest chemical properties ; in others they manifest vital properties. This is the sum of their utterances on this subject.

In the first place, if this theory were true the

difficulty would not be explained. Life comes only from life. There is no proof at all of any vital passage from the inorganic to the organic. To the conclusion derived from Tyndall's experiments upon floating dust and germs, the theory of spontaneous generation has not made any effective reply. So far as our present chemistry is concerned, the organic and inorganic are separated by an impassable gulf. Mightily as it has conjured, it knows no incantation which will evoke the living from the lifeless. Prophecy is not wanting, but fulfillment has thus far been of the Millerite order. If, then, the chemical combination explained the phenomena, the chemical combination would next have to be explained. Is the combination the source of life? it is no less certain that life is the only known cause of the combination. The backdoor by which Mr. Huxley escaped from a similar dilemma about protoplasm is still open, however; and the correlationist may escape the difficulty, by suggesting that under very extraordinary conditions, and in some time so far out of sight as to be beyond criticism, that which our highest wisdom cannot now accomplish, that which it would be folly to think happens now, happened then of its own accord.

So much for the explanation, even if it were true, that the chemical combination explains the facts. But is it true? We are met by difficulties here again. If it be true, these identical combinations ought to result in the same forms of life. It is well known,

however, that the germ-cells of many of the higher and lower animals, and even of plants, are chemically identical. Yet each of those germs is potential of a specific type of life, and of no other. Now, if chemical affinity is the only force at work here, how does it happen that these germs of similar composition develop into such diverse forms?

It is said that difference of conditions determines the difference of result, but the answer to this plea is obvious. On this supposition the source of impregnation is a matter of indifference. A mouse might become a man, and conversely; in short, all males might interchange without affecting the result. Condition will, indeed, determine whether a given germ shall realize its type of development, but the type is impressed upon the germ itself. If the conditions of development are not met there is no result; but where they are met, then the thing develops after its kind. That the microscope detects no trace of organization, is no argument against the fact—the microscope is not all-seeing. Professor Tyndall has pointed out that the most profound and complex changes take place almost infinitely below the microscope limit. We know, too, that a human germ may carry with it an evil tendency which, in thirty or forty years, shall send a man to the insane asylum. Now in the same way, only much more intimately, does the germ bear with it an organizing, constructive power which, when the fit conditions are supplied, will determine the future

product. The doctrine of the chemical affinity of germs is just the reason why we cannot look upon life as a function of affinity, because it leaves the difference of the product entirely unaccounted for. At this point the correlationist, instead of admitting that his doctrine is without support, generally suggests that though known chemical properties do not explain the facts, there may be unknown properties which do—a mode of argument which would disprove every scientific doctrine.

But what, then, is the function of the physical forces in the body? We take food, which certainly does nourish the system and does produce power; is not this a correlation? Grant that the correlation is a logical impossibility, is it not, like many other logical impossibilities, an established fact? To this the answer is, that the physical forces are the working forces of the system—they are expended in labor and in the performance of function—but the preceding considerations render it impossible to look upon them as the organizing, constructive, or directive force of the system. This organizing force employs the physical forces as its servants, and cannot dispense with them; but there is no proof of correlation.

The only argument of any weight that can be urged against this has been offered by Mr. Maudsley, and that does not attack the justice of the reasoning, but rather seeks to evade it by a skillful flank movement. He says: "Admitting that vital transforming matter is

at first derived from vital structure, it is evident that the external force and matter transformed does, in turn, become transforming force—that is, vital. And if that takes place after the vital process *has once commenced*, is it, it may be asked, extravagant to suppose that a similar transformation might at some period have *commenced* the process, and may ever be doing so? The fact that in growth and development life is continually increasing from a transformation of physical and chemical forces is, after all, in favor of the presumption that it may at first have so originated. And the advocate of this view may turn upon his opponent and demand of him how he, with a due regard to the axiom that force is not self-generatory, and to the fact that living matter does increase from the size of a little cell to the magnitude of a human body, accounts for the continual production of transforming power? A definite quantity only could have been derived from the mother structure, and that must have been exhausted at an early period of growth. The obvious refuge of the vitalist is to the facts that it is impossible now to evolve life artificially out of any combination of physical and chemical forces, and that such a transformation is never witnessed save under the conditions of vitality.”*

This is the best thing the correlationists have said yet, and it is the best that can be said. The only thing more satisfactory will be the production of life

* *Body and Mind*, p. 169.

from the inorganic—a thing which Mr. Maudsley prophesies with somewhat of confidence. Dr. Carpenter's famous *reductio ad absurdum* against the vitalists is similar to this argument, but, having the logical merit of self-contradiction, it need not be considered. Now, the sum of Mr. Maudsley's argument is this—vital force is increasing. But either it must be self-generating or it must be transformed physical force. The former supposition is absurd, hence the latter is true. This is his argument; his soothsayings are beside the question.

It is not quite certain, however, that the first supposition is as absurd as the exigencies of the argument demand. Scientific men teach that an atom of matter can propagate its attractive influence along an infinite number of radii and to an infinite distance, and do it forever—this is the doctrine of gravitation. Moreover the atoms of a molecule hold each other in a grasp which giants could not wrench asunder, and exert this tremendous pull forever—this is the doctrine of chemical affinity. Now one might turn upon the advocate of these doctrines and "demand how he, with due regard to the axiom that force is not self-generating," can hold such views? But if these views are not incredible, why may not the original spark of vitality have indefinitely extended itself? But granting the supposition to be as absurd as Mr. Maudsley thinks it, his alternatives do not exhaust the possibilities of the case. Vitality might be self-

generating, it might be transformed physical force, or it might have a source unrecognized at present. Let us grant the absurdity of the first supposition, the previous considerations show the difficulty of admitting the second; there is, then, no alternative but to ascribe it to an unknown source. Indeed, why not? There may well be "more things in heaven and earth than are dreamed of in our philosophy."

So much for the correlation of the physical and vital forces. Our interest in the doctrine is chiefly logical; true or false, religion would be able to live and philosophy to catch its breath. But whatever the future may establish, at present this boasted correlation has not a shadow of support, but is in irreconcilable opposition to known facts. It is based, in many cases, upon that desire for unity and simplicity in science which is at once so attractive and so misleading; in many more, it is based upon a desire to be irreligious; and in all, upon monstrously bad logic.

But let us get back to Mr. Spencer. His argument for the identity of physical and vital force, we saw to be triumphantly worthless; now, let us see whether he succeeds any better in proving the identity of the physical and mental forces. It is not at all probable, after the specimens we have already had of Mr. Spencer's reasoning, that we shall meet with any valuable results; still let us possess our souls in patience. The proofs adduced are as follows:

"All impressions from moment to moment made on our organs of sense stand in direct correlation with physical forces existing externally. The modes of consciousness called pressure, motion, sound, light, heat, are effects produced in us by agencies which, as otherwise expended, crush or fracture pieces of matter, generate vibrations in surrounding objects, cause chemical combinations, and reduce substances from a solid to a liquid form. Hence, if we regard the changes of relative position, of aggregation, or of chemical state thus arising, as being transformed manifestations of the agencies from which they arise, so must we regard the sensations which such agencies produce in us as new forms of the forces producing them." . . .

"Besides the correlation and equivalence between external physical forces and the mental forces generated by them in us under the form of sensations, there is a correlation and equivalence between sensations and those physical forces which, in the shape of bodily actions, result from them. The feelings we distinguish as light, heat, sound, odor, taste, pressure, etc., do not die away without immediate results, but are invariably followed by other manifestations of force. In addition to the excitements of secreting organs that are in some cases traceable, there arises a contraction of the involuntary muscles or of the voluntary muscles, or of both. Sensations increase the action of the heart—slightly when they are slight,

markedly when they are marked—and recent physiological inquiries imply not only that contraction of the heart is excited by every sensation, but also that the muscular fibers throughout the whole vascular system are at the same time more or less contracted.” . . .

“If we take emotions instead of sensations, we find the correlation and equivalence equally manifest. Not only are the modes of consciousness directly produced in us by physical forces re-transformable into physical forces under the form of muscular motions, and the changes they initiate, but the like is true of those modes of consciousness which are not directly produced in us by the physical forces. Emotions of moderate intensity, like sensations of moderate intensity, generate little beyond excitement of the heart and vascular system, joined sometimes with increased action of glandular organs. But, as the emotions rise in strength, the muscles of the face, body, and limbs begin to move. Of examples may be mentioned the frowns, dilated nostrils, and stampings of anger ; the contracted brows and wrung hands of grief ; the smiles and leaps of joy, and the frantic struggles of terror and despair. Passing over certain apparent, but only apparent, exceptions, we see that whatever be the kind of emotion, there is a manifest relation between its amount and the amount of muscular action induced.”—Pp. 275-277.

This, with the further considerations that physical

stimuli, as whisky or opium, increase mental action, while unconsciousness follows inaction of the brain, is the substance of the proof that the physical and mental forces are one. Disengaged from swelling statement it reads thus: Physical forces, such as light or heat, excite sensations; therefore sensations are transformed light and heat.

Sensations, being pleasant or painful, are followed by motion either toward or from the object of sensation. Hence mechanical motion and its equivalents are the correlates of sensation.

Again, mental action is attended by certain physical conditions; hence they are one.

Indeed, the whole argument may be summed up in this: Physical states excite mental states; hence each is a form of the other.

Now, looking at this merely with a logician's eye it must be confessed that it falls far short of proof. It establishes relation, not identity. One thing may well be the occasion of another without being that other. No one can deny that light and heat may be the physical antecedents of sensation without being transformed sensations. Surely to prove a relation is not to prove a correlation. To the claim of quantitative relation between mental action and brain waste there is this reply: The soul communicates with the physical world through a material organism, and its interests are bound up with it. Mental action is accompanied by nervous action, and this being

so, we should expect such quantitative relation even if there were no real interchange of power. Besides, there are many things which seem to indicate that even this relation is not as constant as the theory demands ; that the soul can by its own energy maintain and restore physical vigor. It often happened during our late war that a stirring national air or some familiar home-tune inspired a body of dispirited and worn-out men with new life and vigor. Every student has known what it is to feel the jar and discord of a nerve cease, and weakness pass into power, as, in some moment of desponding gloom, a great thought has kindled within ; under its inspiration he has achieved the impossible, and without any corresponding depression. Whence the new power ? Ordinarily the connection between mental action and nervous waste is maintained, but it does not seem to be always so. Yet if it were, the correlation is not made out. The experiments made by Professor Barker and others, which are said to establish the identity of heat and mental force, really prove only a correlation between heat and the nervous action which attends thinking. Nervous action and heat correlate, but the real point is to prove that nervous action and mental force correlate. This has never been done. The whole argument consists in ringing the changes upon the fact, known and undoubted from the beginning, that mental and physical states affect each other—which is far enough from proving

an identity. Yet, not only is this all that Mr. Spencer has to offer, it is all that any one has to offer ; and the conclusion based upon this scanty evidence is dressed up in a pseudo-science, and trumpeted abroad as having all the certitude of scientific demonstration. To ask for more proof is sure proof of "an overwhelming bias in favor of a preconceived theory."

Bad as the argument is logically, psychologically it is a great deal worse. But as I wish to reserve this discussion for the next chapter, I will merely indicate the psychological shortcomings of the theory and pass on. In the first place, the doctrine does not explain why even sensation is impossible without an inner activity of the soul. In the next place, it gives no account of the great majority of our mental states which have no physical antecedent. It also denies the possibility of self-determination, which is one of the most assured facts of consciousness ; and finally, it contradicts the emphatic distinction which the soul makes, between itself and the organism which it inhabits.

But psychology has yet another word to offer to the "New Philosophy." It demands the authority for the belief in force at all. It summons the evolutionist to tell where he discovered this force with which he conjures so mightily. And just here every system of mechanical atheism is speechless. For it is admitted now by all that force is not a phenomenon, but a mental datum. Hume did philosophy a good service in show-

ing that nature presents nothing but sequence, and this is rigidly true. The keenest eye, looking upon the armies of phenomena which maneuver in the physical world, could detect nothing but succession. Regiment after regiment might march by us in time-order, but they could give us no hint of power. This idea is home-born, and born only of our conscious effort. It is only as agents that we believe in action ; it is only as there is causation within, that we get any hint of causation without. Not gravitation, nor electricity, nor magnetism, nor chemical affinity, but will, is the typical idea of force. Self-determination, volition, is the essence of the only causation we know ; will is the sum-total of the dynamic idea ; it either stands for that or nothing. Now science professes itself unable to interpret nature without this metaphysical idea of power. Some of the more rigorous Baconians, as Comte and Mill, have attempted to exclude the conception from science as without warrant ; but the ridiculous contradictions into which they fell, only served to make more clear its absolute necessity.

Science refers all change to one universal force ; what is that force ? It is either the activity of a person, the determination of a will, or nothing. If external causation is to be affirmed on the warrant of internal causation, the external must be after the pattern of the internal ; the existence of one thing is no reason for affirming the existence of another totally unlike it. The mental law which warrants the

belief in external power, warrants the interpretation of that power into the divine activity. If science like not this alternative, then it has no warrant for belief in force at all. It must content itself with a lifeless registration of co-existences and sequences which have no dynamic connection. Every form of science which assumes the reality of causation must disappear ; and Positivism, a thousand-fold more rigid than M. Comte ever dreamed of, will be all that is left us. The uncultured mind in all ages has persisted in referring external phenomena to external wills. Was there a storm, Neptune was angry, or Eolus had let slip the winds. Was there a pestilence, some malignant demon had discovered the fountain of life, and charged it with deadly poison. Every order of fact had its god, to whose agency it was referred. The winds were ministers, and the brooks had their errand. In that early time men saw a divine smile in the sunshine and the harvest, and detected tokens of wrath in the flying storm. The quiet lake, which reflected from its surface the encircling woods and hills, was the abode of a divine peace ; and each dark and fearful cave was the dwelling-place of a fury. In short, nature was alive, and men gazed upon it and saw there their own image. Absurd as were many of the beliefs begot of this tendency, it was far truer to psychology than is the prevailing scientific conception of an impersonal force. Nature is the abode and manifestation of a free mind like our own. We

prune and criticise that ancient belief, and return to find it, not false, but needing only a transfigured interpretation. As for the scientific conception of an impersonal force, it has no warrant within, nor the shadow of support without. Will-power, or none, is the alternative offered by inexorable logic. Besides, the doctrine of an impersonal force in matter seems really opposed to the law of inertia. The law assumes absolute deadness in matter ; the doctrine attributes to it all kinds of activity. One doctrine is that matter cannot change its state ; the other is that matter can change its state. It is for the scientists to determine which they will give up. If they retain inertia, they must give up the force ; and if they retain the force, they bring matter within the realm of the self-determining.

M. Comte in a very remarkable passage admits the justice of this reasoning. He says :

“If we insist upon penetrating the insoluble mystery of the essential cause of phenomena, there is no hypothesis more satisfactory than that they proceed from wills, dwelling in them or outside of them ; an hypothesis which assimilates them to the effects produced by the desires which exist within ourselves. Were it not for the pride induced by metaphysical and scientific studies, it would be inconceivable that any atheist, ancient or modern, should have believed that his vague hypotheses on such a subject were preferable to this direct mode of explanation. And

it was the only mode which really satisfied the reason until men began to see the utter inanity and inutility of all absolute research. The order of nature is doubtless very imperfect in every respect; but its production is far more compatible with the hypothesis of an intelligent will, than with that of a blind mechanism. Persistent atheists, then, would seem to be the most illogical of theologians; for they occupy themselves with the same questions, yet reject the only appropriate method of handling them.”*

That is, it is nonsense to ask for the cause of the present order; but if you are not yet ripe enough to see the folly of such inquiries, then the only rational answer is that the order of nature is the work of a superintending Mind. M. Comte was not, in strictness, an atheist; he was more, he was a positivist.

Mr. Spencer, too, admits the cogency of the reasoning which reduces external force to a personal activity, but escapes the conclusion by the following logical sleight-of-hand:

“On lifting a chair, the force exerted we regard as equal to that antagonistic force called the weight of the chair; and we cannot think of these as equal without thinking of them as like in kind, since equality is conceivable only between things that are connatural. The axiom that action and reaction are equal, and in opposite directions, commonly exemplified by this very instance of muscular force *versus*

* L'Ensemble du Positivisme, p. 46.

weight, cannot be mentally realized on any other condition. Yet, contrariwise, it is incredible that the force as existing in the chair really resembles the force as present to our minds. It scarcely needs to point out that the weight of the chair produces in us various feelings according as we support it by a single finger, or the whole hand, or the leg; and hence to argue, that as it cannot be like all these sensations, there is no reason to believe it like any. It suffices to remark that since the force as known to us is an affection of consciousness, we cannot conceive the force existing in the chair under the same form without endowing the chair with consciousness. So that it is absurd to think of force as like our sensation of it, and yet necessary so to think of it, if we realize it in consciousness at all."—P. 58.

Mr. Spencer here admits that if we think of external force at all it must be viewed as a personal power like our own; but as this would land us in absurdities, we must not conceive it under such a form. However, the force of his argument against the conception lies entirely in the assumption that force is identical with muscular tension and sensation. There is no absurdity in supposing that the great, coördinating force of matter, whereby not only this chair and the earth, but all things, are bound together, is a manifestation of a Divine will; and in such case, whenever our wills measure themselves against it, there would really be a common measure.

There is no need to endow the chair with consciousness or the power of sensation, but only to conceive this universal coördinating power as rooted in a personality in some respects like our own. As for the tension that we feel, it is not force, but the effect of force. Sensation is not power, but result. Our knowledge of power is based upon our self-determination, and not upon our muscular feelings ; all of which might be removed without in any way affecting our knowledge of force. There is, to be sure, an absurdity in the paragraph, but it is the absurdity of identifying cause and effect, and belongs entirely to Mr. Spencer.

In a recent essay upon Mr. Martineau, Mr. Spencer makes some further criticisms upon this doctrine, that mind is first and rules forever. He orders up the following re-enforcements :

“ If, then, I have to conceive evolution as caused by an ‘ originating Mind,’ I must conceive this mind as having attributes akin to those of the only mind I know, and without which I cannot conceive mind at all. I will not dwell on the many incongruities hence resulting by asking how the ‘ originating Mind’ is to be thought of as having states produced by things objective to it ; as discriminating among these states and classing them as like and unlike, and as preferring one objective result to another. I will simply ask, What happens if we ascribe to the ‘ originating Mind’ the character absolutely essential to the conception of mind, that it consists of a series

of states of consciousness? Put a series of states of consciousness as cause and the evolving universe as effect, and then endeavor to see the last as flowing from the first. It is possible to imagine in some dim kind of way a series of states of consciousness serving as antecedent to any one of the movements I see going on, for my own states of consciousness are often indirectly the antecedents to such movements. But how if I attempt to think of such a series as antecedent to all actions throughout the universe, to the motions of the multitudinous stars through space, to the revolutions of all their planets around them, to the gyration of all these planets on their axes, to the infinitely multiplied physical processes going on in each of these suns and planets? I cannot even think of a series of states of consciousness as causing the relatively-small group of actions going on over the earth's surface; I cannot even think of it as antecedent to all the winds and dissolving clouds they bear, to the currents of all the rivers and the grinding action of all the glaciers; still less can I think of it as antecedent to the infinity of processes simultaneously going on in all the plants that cover the globe, from tropical palms down to polar lichens, and in all the animals that roam among them, and the insects that buzz about them. Even to a single small set of these multitudinous terrestrial changes, I cannot conceive as antecedent a series of states of consciousness—cannot, for instance, think

of it as causing the hundred thousand breakers that are at this instant curling over the shores of England. How, then, is it possible for me to conceive an 'originating Mind,' which I must represent to myself as a series of states of consciousness, being antecedent to the infinity of changes simultaneously going on in worlds too numerous to count, dispersed throughout a space which baffles imagination?"*

If the doctrine of an "originating Mind" prove to be one half as absurd as the doctrine of this paragraph, it ought to be given up at once. Note first the definition of mind as a "series of states of consciousness." I verily believe with Mr. Spencer, that such a mind could not originate either the universe or any thing else; but the definition looks to me very much like a "symbolic idea of the illegitimate order." A state must be the state of something. Consciousness implies a being who is conscious; motion implies something moved; and so a state implies a being which is in that state. Mind is neither a state nor a series of states, but a being which experiences these states. I do not hesitate a moment to class Mr. Spencer's definition with the "pseud-ideas." I grant that in many things the Divine Mind must be altogether different from ours. We gain our knowledge from without; with Him all is self-contained. Our art is but the faintest copy of what is original with Him. From our own experience we can gain no

* "Popular Science Monthly," July, 1872.

clew to very many phases of the Creative Mind. His ways are not as our ways, nor his thoughts as our thoughts. We can predicate nothing of the Divine Reason save the purest intellection. But the fundamental conception of mind is that of a self-determining intelligence; and whenever we meet with a free intelligence, we call it a mind. It may differ in many ways from us, but in the underlying freedom and knowledge we find a common measure.

Now can such a mind, free and intelligent, be the cause of all things? Mr. Spencer thinks not; for though it is abundantly credible that linear forces in their blind play should have produced the great harmony of the universe, a mind, he thinks, would become confused and giddy. I defy any one to get out of Mr. Spencer's argument, apart from the nonsense about the "series of states," any thing more than the suggestion that an infinite mind would have more on hand than it could attend to. He speaks of the infinity of processes going on upon our earth, multiplies it by the number of the stars, and asks if it is credible that one mind should originate and control all this.

Nay, let us obey Mr. Spencer, and think upon the multitudinous changes which are forever going on. Let us begin with the small series of changes which take place on a day in June, when

"Every clod feels a stir of might,
An instinct within it, that reaches and towers,
And groping blindly above it, for light,
"Climbs to a soul in grass and flowers,"

and remember that all these changes are along lines of order and of beauty. Think of the universal warring of tremendous forces which is forever going on, and remember that out of this strife is born, not chaos, void and formless, but a creation of law and harmony. Bear in mind, too, that this creation is filled with the most marvelous mechanisms, with the most exquisite contrivances, and with forms of the rarest beauty. Remember, also, that the existence of these forms for even a minute depends upon the nicest balance of destructive forces. Abysses of chaos yawn on every side, and yet creation holds on its way. Nature's keys need but to be jarred to turn the tune into unutterable discord, and yet the harmony is preserved. Bring hither your glasses, and see that from atomic recess to the farthest depth there is naught but "toil coöperant to an end." All these systems move to music ; all these atoms march in tune. Listen until you catch the strain, and then say whether it is credible that a blind force should originate and maintain all this. Mr. Spencer thinks it is. There is no difficulty in supposing a mechanical force to have done it all ; but the hypothesis of a Creative Mind, which animates nature and realizes His thought in all its phenomena, is too incredible to be entertained for a moment ; because, forsooth, such a mind would have too much to attend to. Surely science must be asleep, and philosophy at its lowest ebb, when such sheer nonsense as this is allowed to

usurp, unchallenged, a prominent place in either. Do you speak of the stars? "Lift up your eyes on high, and behold who hath created these things, that bringeth out their host by number: he calleth them all by names; by the greatness of his might, for that he is strong in power, not one faileth." Does the infinity of orderly change astonish you? "Hast thou not known? hast thou not heard, that the everlasting God, the Lord, the Creator of the ends of the earth, fainteth not, neither is weary? there is no searching of his understanding." The absurd definition of mind is miserable enough as an argument; but the assertion that a mind would be unequal to the situation, is positively ludicrous.

One active force in nature, the scientists say; and psychology gives them the choice of making that force nothing, or else the activity of an ever-living Will. Yet possibly some may feel that this doctrine is at variance with known scientific facts. How can we reconcile this doctrine with the fixedness of nature's laws? The answer is, "With Him is no variableness, neither shadow of turning." Why may not Will adopt for purposes of its own a fixed mode of working? Why may not the steady law be made the expression of the constant thought?

But is not gravitation an impersonal force? Surely, since all the splendid achievements of astronomy are based upon this conception, we must suppose it to represent a fact.

Yes, we may suppose it to represent a fact, while it is not the fact itself. In mechanics, when we have a single force we can always decompose it into two or more forces which shall produce the same effect; or if we have a number of forces, we can compound them, and obtain an equivalent single force. In every such case of resolution and composition, the reasoning for one member of the equation holds also for the other; yet we are not dealing with the fact itself but with its equivalents—the resultant is the equivalent of the components, and conversely. By this device the problem is made amenable to our calculus, and the known equivalence justifies our confidence in the conclusion.

Now scientific theories I believe to be of this nature; they are equivalents of the fact, and not the fact itself. Being equivalents, they serve the purposes of science as well as the fact itself would—enabling us to pre-visualise phenomena, and giving unity to our knowledge, which are the chief functions of science. Thus the atomic theory works upon matter as composed of indivisible atoms. Different elements have atoms of different sizes, and perhaps of different forms; but the size and form for each element are constant. Our chemical philosophy is based almost entirely upon this conception. By means of it we are able to co-ordinate many chemical facts, and to form some dim idea of the method of chemical combination. But while the theory has a scientific value, it is extremely

doubtful whether it represents any fact of the interior constitution of matter ; it is an equivalent, not a fact. So, too, the vibratory theory of light, and the classifications of natural history, serve to explain many facts, to give unity to our knowledge, and to forecast the future. So far they are equivalents, and we may safely rely upon the conclusions based upon them, but there is no proof that they are any thing more. Indeed, the fact that they all fail to explain all the phenomena, indicates that they are like those mathematical calculations which are based upon approximative methods—true enough for practical purposes, but sure to diverge from the truth if carried too far. They all have a parallax with reality, imperceptible indeed for terrestrial measures, but at the distance of the fixed stars the sub-tending line is the diameter of the earth's orbit.

This, then, is what I mean in saying that the scientific conception of gravitation represents a fact, while it is not the fact itself. Indeed, this is the way in which Newton stated the theory ; not that there is a power in the sun by which the planets move, but that they move as they would if there were such a power. That the force of gravity really resides in the atoms, Newton declared to be a conception which no philosopher could entertain, because it implies that inert matter can act where it is not ; and that, too, across an absolute void, and without any media whatever. Mr. Mill felt

called upon to rebuke Newton for this statement, insisting that no one now finds any difficulty whatever in believing that matter can act across a void, and without media ; and he further advised that every philosopher who feels inclined to say what can be, and what cannot, should hang this statement of Newton's in his study as a warning against similar rashness. But since Mr. Mill had already filled the first half of his "System of Logic" with proofs that there is no active power in matter, and that even matter itself is only an assumption, which is far from being sure, it would seem that Mr. Mill himself might with very great propriety have hung this statement of Newton's in his study, together with some of his own, and might with advantage have pondered them well before he uttered his rebuke. The truth is, that to the empirical intellect, whatever is customary is clear ; as to the empirical conscience, whatever is customary is right. Science has the laws of the planets' movements, and that is all that it needs to know. As to the force by which they move, science can say nothing ; that is a question for philosophy, and philosophy repudiates the conception of an impersonal force, as involving irrationalities ; and declares this great coördinating force of nature to be the activity of Him in whom we live, and move, and have our being.

I look upon this idea of force as the only mediator between science and religion. It has long been seen

by all thinking men that it is impossible to make any satisfactory partition of territory between these rivals. Wherever there are events, whether in mind or in matter, science will look for a law. Wherever there are events, whether in mind or matter, religion will look for God. If science and religion are mutually exclusive, there must be constant encroachments, with resulting feuds, until one or the other is destroyed. It may be possible for some men to keep their religion in one hemisphere of their brain and their science in the other; but to most men such a feat is impossible. Few minds are foggy enough to have hostile ideas encamping in the same head without detecting each other's presence. Nor is it desirable that it should be otherwise, for such a composite figure is more suggestive of hypocrisy than any thing else. If one lobe believes only in immutable law, the other can have little faith in prayer.

But it seems to me that this idea of force, which is as much the necessity of science as it is of religion, makes an honorable reconciliation possible, because it enforces on the one hand the need of an originating and controlling mind, and on the other leaves the method of its working undetermined. Science discovers laws, but is forced to provide an ever-active administrator; this satisfies religion. Religion proves an ever-living Will, but is compelled to grant its steady method; this satisfies science. Thus each can look without aversion upon the claims and efforts of the

other. To the claim of religion that mind is not last but first, and rules forever, science says, Amen. To the claim of science, that this mind has its steady method, religion answers,

"God is law, say the wise, O soul, and let us rejoice.
For if he thunder by law, the thunder is still his voice."

Chastened and purified by needed criticism, religion takes up again the strain of ancient piety, and sings, with a deeper and more assured knowledge, that He holdeth the deep in the hollow of his hand, and causeth the day-spring to know his place. To religion the cause, to science the method; to religion the power, to science the path: this, I believe, is the only possible basis for an abiding peace.

But as it is desirable to continue this argument a little further, that we may more clearly see the true character of Mr. Spencer's system, let us grant what he assumes, the existence of a universal impersonal force, and inquire how he accounts for the intelligence which the universe seems to manifest. We shall find it to be only the old atheistic system of chance in a new, and not much improved, edition. One force of infinite differentiations, but without intelligent play, is that able to turn chaos into creation? is that able to hit upon and maintain organic forms which are marvels of adaptive skill? is that able to construct the eye with its double lenses to refract the light, with its chamber darkened that no

wandering reflections may disturb the image, with its optic nerve at the optical focus for the reception of the picture, and with its telegraphic line of communication with the brain? If life is a resultant of force, it is not the result of a single form but of many. Mechanical, chemical, elective, thermal forces enter into the compound; and only by the nicest adjustment is life maintained. Is this underlying linear force capable of originating and maintaining the happy balance? The old theory that out of a jumble of atoms organic forms arise, is scouted by every one; is it any more credible that they should arise out of a jumble of forces? Mr. Spencer sees no difficulty in such a view, and bases his faith upon the "Instability of the Homogeneous," the "Multiplication of Effects," and "Differentiation and Integration;" three chapters in which he explains the process of evolution.

Take any mass of homogeneous matter; its parts stand differently related to both internal and external forces. The exterior will receive light and heat, while the interior will receive no light and little heat. The same is true of the action of any of the forces; they must affect different parts unequally. But this unequal action will result in unequal changes, by which the original homogeneity will be destroyed. Heterogeneity, being once established, will cause a still more varied reaction of the several parts, and the necessary result will be a still more complex

heterogeneity. The increasing differentiation of the parts will cause the incident forces to split into a variety of forms—light, heat, electricity—all of which will increase the heterogeneity and “multiply effects.” Here, then, we have a force constantly at work to produce diversity. Under its operation the homogeneous nebula spun itself into orbital rings, and condensed into solid globes. Its working has produced all the heterogeneity of the earth’s crust, and the complexity of its physical aspects. Now we cannot, to be sure, trace all its operations, but here is a force which, in some of its turnings and twistings, must produce living forms. This is the sum of the chapters on the “Instability of the Homogeneous” and the “Multiplication of Effects.” It will hardly be credited without a quotation.

“Take a mass of unorganized but organizable matter—either the body of one of the lowest living forms or the germs of one of the higher. Consider its circumstances—either it is immersed in water or air, or within a parent organism. Wherever placed, however, its outer and inner parts stand differently related to surrounding agencies—nutriment, oxygen, and the various stimuli. But this is not all. Whether it lies quiescent at the bottom of the water or on the leaf of the plant; whether it moves through the water, preserving some definite attitudes, or whether it is in the inside of an adult, it equally results that certain

parts of its surface are more exposed to light, heat, or oxygen, and in others to the material tissues and their contents. Hence must follow the destruction of its original equilibrium,"—P. 370. The overturned equilibrium is assumed to take the direction of the parent form.

But as this assumption in the case of the higher organisms would task the credulity even of an evolutionist, Mr. Spencer proceeds to mask it as follows:

"Of course in the germs of the higher organisms, the metamorphoses immediately due to the instability of the homogeneous are soon masked by those due to the assumption of the hereditary type. Such early changes, however, as are common to all classes of organisms, and so cannot be ascribed to heredity, entirely conform to the hypothesis. . . .

"But as already hinted, this principle, understood in the simple form here presented, supplies no key to the detailed phenomena of organic development. It fails entirely to explain generic and specific peculiarities; and indeed leaves us equally in the dark respecting those more important distinctions by which families and orders are marked out. Why two ova, similarly exposed in the same pool, should become the one a fish and the other a reptile, it cannot tell us. That from two different eggs placed under the same hen should respectively come forth a duckling and a chicken, is a fact not to be accounted for on the hypothesis above developed. We have here no

alternative but to fall back upon the unexplained principle of hereditary transmission. The capacity possessed by an unorganized germ of unfolding into a complex adult, which repeats ancestral traits in the minutest details, and that even when it has been placed in conditions unlike those of its ancestors, is a capacity we cannot at present understand. . . . Should it, however, turn out, as we shall hereafter find reason for suspecting, that these complex differentiations which adults exhibit are themselves the slowly-accumulated and transmitted results of a process like that seen in the first changes of the germ, it will follow that even those embryonic changes due to hereditary influence are remote consequences of the alleged law. Should it be shown that the slight modifications wrought during life on each adult, and bequeathed to offspring along with all preceding modifications, are themselves unlikenesses of parts that are produced by unlikenesses of conditions. Then it will follow that the modifications displayed in the course of embryonic development are partly direct consequences of the instability of the homogeneous, and partly indirect consequences of it."—
Pp. 373, 374.

This is admirable strategy, but it does not alter the argument. It extends the time a little, but after all every thing comes back, directly or indirectly, to the instability of the homogeneous. The homogeneous germ must lapse into heterogeneity. Action

and reaction, will be further complicated by this change—"effects" will be "multiplied," and the result will be more heterogeneity. The direction of these changes is, to be sure, mainly a matter of guess-work—for, as Mr. Spencer well says, "the actions going on throughout an organism are so involved and subtle that we cannot expect to identify the particular forces by which particular integrations are effected." The finished result will be, let us suppose, a baby. Out of the infinite heterogeneities possible, this unintelligent force will hit each time upon that particular heterogeneity, a baby. When born, it will bring with it eyes fitted for the light, ears adapted to sound, lungs adapted to the air, bones to support the structure, muscles to move it, a nervous system to coördinate and control its motions; yet this marvelous adaptation of the parts to each other, and of the whole to its surroundings, and this astonishing prevision of future needs, are the results of the "Instability of the Homogeneous" and the "Multiplication of Effects." Two pregnant principles surely. But grant that the homogeneous is unstable, why should it not fall into a chaotic heterogeneity? Why should not the heterogeneous changes cancel themselves, that is, why should not the result of one heterogeneity be to cancel a previously existing one? Why should there be any progress at all? Most of all, why should there be any orderly and intelligent series of changes such as are here exhibited? Chaotic heter-

ogeneities are infinite ; how does it happen that this overturned homogeneity escapes all those, and lights upon a heterogeneity which is impact of intelligence, foresight, and purpose ? There is no answer to these questions in any thing which Mr. Spencer has said. The "Instability of the Homogeneous" might possibly account for chaos ; it is totally insufficient to explain creation.

Mr. Spencer attempts to supplement this reasoning by the chapter on "Differentiation and Integration." The doctrine is that like tends to get with like under the operation of a uniform force. It is illustrated by the fact that a smart breeze in October carries away the dying leaves and allows the green ones to remain. This is called "segregation." The sorting action of rivers is another example ; first the larger stones are deposited, next the smaller, and finally the mud and sand settle far out at sea. Some phenomena of crystallization are also appealed to ; and in society we find that birds of a feather flock together. All these are instances of "segregation." Mr. Spencer has a way of using the vaguest and most far-fetched analogies as identities, which often makes it impossible to get at any defined meaning. But I suppose he intends by these illustrations to teach that there is some kind of sorting action in the body, whereby similar kinds of organic matter get together. Bone matter unites, nervous matter segregates, etc. This is the reason why each organ ob-

tains its own peculiar nourishment. Omitting to inquire as to the fact, it suffices to say that even if true the argument is not improved. Simple aggregation would satisfy the law of segregation; but something more than aggregation is necessary for organic systems. Nervous matter must not only be segregated, but segregated in a very peculiar manner. The marvelous network of nerves which incloses and interlaces the body is a remarkable order of segregation, and one which is hardly illustrated by the blowing away of dead leaves or the washing of sand out of gravel. The same remark is true for all the components of the body. Bones, muscles, veins, sinews, must be segregated after an exact pattern to serve the needs of the structure. It is not segregation alone, but the segregation in such peculiar forms, in forms so happily adapted to the wants of the organism, and which display such marks of intelligence; this it is which is the real wonder; and this is entirely unaccounted for by any thing in the "Instability of the Homogeneous," the "Multiplication of Effects," or the process of "Differentiation and Integration." I avow it; this is nothing but the Lucretian system of chance dressed up in a pseudo-scientific jargon. The atoms, Lucretius says, must in infinite time try all forms; and some of these forms will live. The homogeneous, says the later Lucretius, must fall into the heterogeneous; and some of these heterogeneities will live. Will some one point out the difference be-

tween them? An imposing and confusing terminology, which is made to take the place of argument, is the only advantage which the modern has over the ancient.

The purely hap-hazard character of Mr. Spencer's system appears more clearly in the volumes on Biology and Psychology, where these principles are applied at length. I will close this part of the discussion by exhibiting the account of the genesis of Nerves and Nervous Systems. The thesis is, that nerves and nervous systems are formed by the passage of motion along lines of least resistance; and the argument is as follows:

"When, through undifferentiated tissue, there has passed for the first time a wave of disturbance from some place where molecular motion is liberated to some place where it is absorbed, the line of least resistance followed must be an indefinite and irregular one. Fully to understand the genesis of nerve, then, we must understand the physical actions which change this vague course into a definite channel, that becomes ever more permeable as it is more used. . . .

"To aid our conceptions we will, as before, take the rude analogy furnished by a row of bricks on end, which overthrow one another in succession. If such bricks on end have been adjusted so that their faces are all at right angles to the line of the series, the changes will be propagated along them with the least

hinderance ; or, under certain conditions, with the greatest multiplication of the original impulse. For when so placed, the impact each brick gives the next, being exactly in the line of the series, will be wholly effective ; but when they are otherwise placed it will not. If the bricks stand with their faces variously askew, each in falling will have a motion more or less diverging from the line of the series, and hence only a part of its momentum will impel the next in the required direction. Now, though in the case of a series of molecules the action can be by no means so simple, yet the same principle holds. The isomeric change of a molecule must diffuse a wave which is greater in some one direction than in all others. If so, there are certain relative positions of molecules such that each will receive the greatest amount of this wave from its predecessor, and will so receive it as most readily to produce a like change in itself. A series of molecules thus placed must stand in symmetrical relations to one another—polar relations. And it is not difficult to see that, as in the case of the bricks, any deviation from symmetrical or polar relations will involve a proportionate deduction from the efficiency of the shock, and a diminution in the quantity of molecular motion given out at the far end. But now, what is the indirect result when a wave of change passes along a line of molecules thus unsymmetrically placed ? The indirect result is, that the motion which is not passed by the unsymmetri-

cally-placed molecules, goes toward placing them symmetrically. Let us again consider what happens with our row of bricks. When one of these in falling comes against the next standing askew, its impact is given to the nearest angle of this next, and so tends to give this next a motion round its axis. Further, when the next thus moved delivers its motion to its successor, it does this not through the angle on the side that was struck, but through the diagonally-opposite angle; and, consequently, the reaction of its impact on its successor adds to the rotary motion already received. Hence the amount of force which it does not pass on is the amount of force absorbed in turning it toward parallelism with its neighbors. Similarly with the molecules. Each in falling into its new isomeric attitude, and passing on the shock to its successor, gives to its successor a motion which is all passed on if the successor stands in polar relations toward it, but which if the relation is not polar is only partially passed on, some of it being taken up in moving the successor toward a polar relation. One more consequence is to be observed. Every approach of the molecules toward symmetrical arrangement increases the amount of molecular motion transferred from one end of the series to the other. Suppose that the row of bricks, which were at the first very much out of parallelism, have fallen, and that part of the motion given by each to the next has gone toward bringing their

faces nearer to parallelism ; and suppose that, without further changing the positions of their bases, the bricks are severally restored to their vertical attitudes ; then it will happen that if the serial overthrow of them is repeated, the actions, though the same as before in their kinds, will not be the same as before in their degrees. Each brick, falling as it now does more in the line of the series, will deliver more of its momentum to the next ; and less momentum will be taken up in moving the next toward parallelism with its neighbors. If, then, the analogy holds, it must happen that in the series of isomerically-changing molecules, each transmitted wave of molecular motion is expended partly in so altering the molecular attitudes as to render the series more permeable to future waves, and partly in setting up changes at the end of the series ; that in proportion as less of it is absorbed in working this structural change, more of it is delivered at the far end and greater effect is produced there ; and that the final state is one in which the initial wave of molecular motion is transmitted without deduction—or rather, with the addition of the molecular motion given out by the successive molecules of the series in their isomeric falls.

“From beginning to end, therefore, the development of nerve results from the passage of motion along the line of least resistance, and the reduction of it to a line of less and less resistance continually. The first opening of a route along which equilibrium

is restored, between a place where molecular motion is in excess and a place where it is in defect, comes within this formula. The production of a more continuous line of that peculiar colloid best fitted to transmit the molecular motion also comes within this formula, as does likewise the making of this line thicker and more even. And the formula also covers that final process by which the line, having been formed, has its molecules brought into the polar order which least resists, and indeed facilitates, the transmission of the wave."*

This entire process, it must be remembered, is below the microscopic limit. These facts are seen only with the mind's eye, and I greatly question whether they have any objective existence. When Mr. Spencer began the paragraph, he was in doubt concerning his doctrine; but after he had imagined the series of bricks falling down and standing up again of themselves, and assumed that the analogy was perfect between the bricks and the unseen molecules, he waxes bolder, and emerges from his imaginations with the formula that nerves are formed by the passage of motion along lines of least resistance, and this formula is said to include every case. Motion makes the nerve, lays down the line of gray matter along which the nervous influence travels, and sheathes it with the white coating which prevents its dissipation. The argument is the purest imagina-

* *Principles of Psychology*, vol. i, pp. 517, 518.

tion ; not even the microscope knows any thing about the process here indicated. But allowing it to pass, it throws no light whatever on the structure of the nervous system. For if it were admitted that motion along lines of least resistance can build up nerves, the lines of least resistance next need explanation. Consider the marvelous interlacing of the nerves, and how necessary that complexity is for the uses of the structure, and then tell us how it came to pass that the lines of least resistance arranged themselves so happily. An eye would be useless without an optic nerve, and accordingly a line of least resistance ran down to the eye. An ear would be worthless without the auditory nerve, but, fortunately, a line of least resistance was not wanting. There is not a muscle in the body which, apart from nervous connection, is of the slightest use ; and to guard against this waste, the lines of least resistance run to every one. The body would be constantly exposed to injury if its surface were not sensitive, and so the lines of least resistance establish sentinels so close to one another that not even the point of a needle can creep between them. The lines of least resistance, upon Mr. Spencer's theory, are the real marvel ; and these are left totally unexplained.

Let us now steady ourselves for a moment before that mass of protoplasm in which no lines of communication are yet set up, and inquire what the result will be when motion is initiated in any part ? Mr. Spencer

says : "The isomeric change of a molecule must diffuse a wave which is greater in some one direction than in all others. If so, there are certain relative positions of molecules, such that each will receive the greatest amount of this wave from its predecessor, and will so receive it as most readily to produce a like change in itself." Now why should that "some one direction" in which the wave of molecular motion is "greater than in all others" be in any case, not to say in each case, the one direction which the needs of the organism make imperative? Why should it take the complex direction of the complete nervous system? There is no *à priori* necessity for such an arrangement; on the contrary, there is the very strongest *à priori* improbability against it. The bare possibility is a thing of chance, and that of a high infinitesimal order, while the argument is based upon as pure fancies as ever entered Don Quixote's brain. Indeed, Mr. Spencer himself at times has misgivings that his account is rather fanciful, and he enters the *caveat* that he does not insist that the primitive nervous system was formed in this way; he only suggests this as a possible way. He further says : "A critical reader may ask, How can a state of molecular tension between two places separated by a great mass of amorphous organic substance cause transmission along a definite line which divides and subdivides in the way described?"

"Doubtless such a process is not easy to imagine

under the conditions we are apt to assume. But the apparent difficulty disappears when, instead of the conditions we are apt to assume, we take the conditions which actually occur. The error naturally fallen into is that of supposing these actions to go on in creatures of considerable bulk ; whereas, observation warrants us in concluding that they go on in extremely small creatures. . . .

“The structure described having been first formed on this extremely small scale ‘admits of eventual enlargement to any scale. Conducing to the growth and preservation of the individual, inherited by progeny capable by the aid it yields of growing still larger, and bequeathed with its accumulated increments of size and development to successively higher types that spread into better habitats and adopt more profitable modes of life, this mere rudiment may, in course of geologic epochs, evolve into a conspicuous nervous apparatus possessed by a creature of large size. And so by this slow indirect method there may be established lines of nervous communication where direct establishment of them would be impossible.”*

Two critical remarks are here to be made :

First. The extension of time which Mr. Spencer bespeaks explains nothing. An evolved steam-engine or loom would be no less the work of intelligence than one made in a day. The involved rela-

* Principles of Psychology, vol. i, p. 530.

tions, the adaptation of means to ends, the purpose which it displays—these demand intelligence in the maker, no matter how far removed he may be from the work. I repudiate entirely Mr. Spencer's suggestion, that the work which it were folly to attribute to chance to-day, might be very rationally attributed to it in geologic epochs. Mr. Spencer is clearly not anxious to make many nervous systems in this fashion. He only seeks to get a primitive one started in some very simple organism ; and, once set agoing, it can take care of itself and go on in endless improvement. But appearances are often deceiving ; the nature of any thing is to be judged by what comes out of it, and not merely by its size and seeming. If that primitive system contained within it capacities for such astonishing development as Mr. Spencer claims for it, then it was not the simple thing he assumes it to be, and the question comes back again in all its force, What involved all these possibilities ? Mr. Spencer has no answer.

The second criticism is, that Mr. Spencer seems to have forgotten that he is engaged in proving the doctrine of evolution, and cannot be allowed to assume it. The force of his reply lies entirely in the assumption that evolution is an established fact. This, however, is not the only time that Mr. Spencer has done this. Many of his arguments, as we shall hereafter see, assume the point in dispute, and are worthless

without the assumption. It is needless to comment upon such admirable strategy.

Such is the scientific account of the origin of nerves and nervous systems. As a piece of ingenious imagination it deserves to rank very high. As an example of nerve, too, it deserves an equally high rank ; for surely it must require a great deal of nerve to manufacture nerves in this fanciful fashion, and then parade the result as having the exactness of science and the certitude of demonstration. After these luminous imaginings, and the *caveat* previously mentioned, Mr. Spencer goes on his way rejoicing, flattering himself that he has proved something, and has rendered the "carpenter theory" of a superintending mind entirely superfluous by these baseless and inconsistent fancies. The only thing more astonishing than the argument itself, is that it should ever have been believed.

But what need to pursue weakness and folly further ? Let us sum up this chapter. We have seen that the philosophical principles of Parts I and II are in absolute contradiction to each other ; that if Part I is true, Part II must be sent to the purgatory of "pseud-ideas ;" while if Part II is true, the sentence of banishment against religious ideas must be recalled. We have seen that the positive proof of the correlation of the physical with the vital and mental forces is of the weakest kind, even if there were no opposing evidence ; while we have further seen that the doctrine

is in the plainest opposition to undoubted facts. We have seen in addition that the same mental law which warrants the belief in external power, also warrants the resolution of that power into a personal activity. Finally, we have seen that, even granting to Mr. Spencer his impersonal force, the proof that it can do the work of intelligence is a compound of scientific terms and the purest romance. When stripped of their seeming science, his explanations are those which atheism has always given—chance and time. These are the great wonder-workers. The future may assign the “First Principles” a place in the “Poetry of Science,” but I am confident that it will do no more. That such a compound of inconsistent fancies and palpable contradictions should have held a prominent position in science for ten years, only shows how low logical and metaphysical studies have fallen among us, and is altogether the best example I can recall of the “Stability of the Heterogeneous.”

CHAPTER IV.

PRINCIPLES OF PSYCHOLOGY.

WE come now to the most difficult problem which evolution has to solve. In the lower field of life we seem still to be dealing with matter and force in space relations, and the evolutionists' argument has a superficial plausibility. But when we rise to the mental plane we meet with a new set of objects, with sensations, with emotions, and with thoughts, in all of which we detect no space relations and no mechanical measures. An impassable gulf seems to separate the world of mind from the world of matter. If there be any mechanical connection it is an occult one, and the reality of the fact must be made plain before we can yield our assent. For, not to mention the difficulty of evolving thought and feeling from the clashing of inert atoms, before this doctrine can be proved, the validity of logical laws and the trustworthiness of all our mental processes must be established. Otherwise, the results reached by reasoning will be untrustworthy, and all science and evolution must disappear together. I expect to find, upon a psychological examination, that the metaphysical data of all reasoning transcend the teaching of experience. In that case the evolution-

ist can take his choice : either he can admit their validity, which will prove fatal to his system, or he can deny it, which will be intellectual suicide.

In examining the testimony, let us bear in mind the points which must be proved : first, that the physical forces and sensation correlate ; second, that thought is only transformed sensation ; third, that the intuitions of reason, while valid for all space and time, are the product of experience ; and, fourth, that the soul has no self-determining power. If any of these points cannot be made out, the theory breaks down hopelessly in its application to mind.

In applying his theory to the explanation of mental evolution, Mr. Spencer finds a philosophy ready-made to his hand. The experience-philosophy has sought, for ages, to prove that all that is in the mind has been derived from sensation. Beginning with this, it aims to show how all the laws of thinking and all our apparently simple beliefs have been generated. The law of causation, the principles of formal logic, the reality of an external world, the moral postulates of conscience, and even the belief in personality, are but elaborated and refined sensations. The astronomer who accepts the nebular theory teaches that the original mist must condense and build up solid globes, and determine all their characteristics. So the experience-philosophy, postulating only a mist of sensation, teaches that that mist must condense, and differentiate, and integrate until

the solid frame-work of mind is built up. There is, indeed, much in the mind, at present, that seems independent of experience, like the belief in logical axioms or in causation ; and these beliefs even put on airs, and repudiate their parentage, and, worst of all, assume to lord it over experience itself. Such filial impiety deserves severe rebuke ; and the experience-philosopher proceeds to reduce these pretenders to becoming humility by showing them the baseness of their birth. The fragrance and beauty of a flower are but transformations of the mold at its root ; so all that seems independent or noble in the mind, is but transformed pains and pleasures. The mind has no powers of its own, but gains them from without, and its laws are all enacted for it by experience. Whatever claims to be independent of this source is an impostor, whose claims must be met with becoming scorn. This philosophy is adopted by Mr. Spencer, without any important modifications, as illustrating the doctrine of evolution. By means of the correlation of forces, he hooks the beginnings of life to the physical world ; and the experience-philosophy is offered as the explanation of mental evolution. In the hands of all its defenders, this philosophy has always taken an insane delight in knocking out its own brains ; and, as habit strengthens with age, we shall find it performing this interesting feat with unusual gusto, under the direction of Mr. Spencer.

But, before he can avail himself of the associationists' teachings, Mr. Spencer must bridge the gulf which separates thought from motion, mind from matter. Until this is done, he cannot assume to explain mental evolution.

His chief argument has already been given in Chapter III. It amounted, as we said, to this: Nervous states affect mental states, and conversely; therefore, each is a form of the other.

The fact alleged is undoubted, and has been admitted by all realists since the world began. It is no new revelation that sickness has a depressing effect upon the mind; that the various physical stimuli affect mental activity; that powerful emotions exalt or depress the functions of the organism; that an injured brain entails unconsciousness, or that a mind diseased can drag the body down into ruin. None of these facts are recent discoveries; and if we grant the truth of the spiritualistic doctrine, this interdependence of soul and body, upon which the materialist bases his belief, is precisely what we should expect. Admit, as we must, that at present the activity of the soul is conditioned by the organism, and all these consequences follow. If the soul communicates with the external world by means of a material organism, then the interests of both must be bound up together as long as the partnership continues. If the external world report itself through nervous tides, then the condition of the

nervous system will be a most important factor of the resulting knowledge. If, on the other hand, the body is the mechanism for revealing thoughts and feelings, it again follows that the state of the instrument must affect the manifestation. If the appointed pathways of sensation are broken up, no reports can pass within. If the dial-plate be defaced and broken, signals can be made no longer. If the wires be disordered, so that only wild and fitful currents can flow over them, the result must be mental distraction at one end, and aimless action at the other; just as the wandering earth-currents, which interfere with the Atlantic cable, spell out only illiterate messages and inarticulate cries. To suppose it otherwise would make the connection useless, and our bodies would be of no more interest to us than our cast-off clothes.

I think, too, that there is a moral reason for the interdependence. If the soul use the body as an instrument for sinning, it shall find itself sold into degrading and bitter bondage by its partner in crime. If it make itself the home of evil, it shall find the body dragged down into ruin along with it, and turned into a bulletin for the publication of its shame. If it were not for this connection, the moral discipline of our present life would be almost entirely lost. But, not to rest the argument upon this, I repeat that the interdependence of physical and spiritual conditions is a necessary result of the hypothesis. Mr. Spencer's

facts are admitted by every psychologist, but there are insuperable objections against assuming that the mental state is but a transformation of its physical antecedent ; a relation undoubtedly exists, but it is impossible to believe in a correlation.

For the physical antecedent does not explain the fact, even in the case of sensation—the department in which the argument is most plausible. Let us follow the in-going nerve-current until it reaches the center of the brain. Let us note the isomeric changes of the nerves and the vibrating molecules of the brain. We do not come upon sensation. On the contrary, motion, molecular machinery, is all we find. There is nothing in all this to give any hint of the world of consciousness beyond. Mr. Spencer himself recognizes a difficulty here, and says :

“How this metamorphosis takes place ; how a force existing as motion, heat, or light, can become a mode of consciousness ; how it is possible for aerial vibrations to generate the sensation we call sound, or for the force liberated by chemical changes in the brain to give rise to emotion—these are mysteries which it is impossible to fathom. But they are not profounder mysteries than the transformation of the physical forces into each other.”*

Mr. Spencer is mistaken. If the received doctrine about the physical forces be true, there is no mystery at all in the change of one into another. For we are

* First Principles, p. 280.

told that all these forces are motions ; heat, magnetism, light, all are modes of motion. The transformation, then, of the physical forces is simply a change of one kind of motion into another—which is not so rare a thing after all ; and if, as seems probable, the difference between these motions is only a difference of faster and slower, the problem becomes simpler still. Now, with all deference to Mr. Spencer's dictum, I must say that the change of one kind of motion into another is one thing, but to change motion into feeling, which is not motion and which cannot by any effort be thought of as motion, is quite another. If we follow the physical forces in their transformations with one another, the antecedent accounts for the result ; but when we attempt to follow them into their correlations with consciousness, the assumed cause gives no explanation whatever of the effect.

Again, if there be a mechanical correlation of thought and motion, the relation must be necessary and constant. Now, if thought and sensation are only transformed nerve-force, the connection should be invariable ; and whenever the proper forces present themselves at the chamber of the mind, the corresponding mental state should invariably appear. But in truth nine tenths of the physical antecedents of sensation never produce any sensation at all. In the concentration of thought, the hum of the school-room, the roar of the street, the thousand sights and sounds

of nature are lost, or attract no attention. This is a fact familiar to every one. The antecedents of sensation are there. From drum and retina come up the nervous tides which are said to correlate with thought, but they perish without notice. And so nerve-currents are constantly pouring up from skin, from muscles, from eye, from ear, but the most of them pour unnoticed over into the abyss which divides thought from the subtlest motion and the rarest matter. What do they correlate with? The sequence of the physical forces is rigid and unvarying; but the sequence of sensation depends entirely upon the attention of the mind within. Sensation is impossible without an inner activity of the soul. Often, indeed, this activity is only semi-conscious; but let it be some faint sound or some dim sight which we are trying to catch, and our activity rises into conscious effort at once. We attend, we listen, we concentrate ourselves upon the particular organ, through which we look for the report; and without this attention, this concentration, this conscious effort, there is no sensation. This fact itself is sufficient to utterly disprove the correlation. There is an inhabitant within, who is not nerve-currents, but who from nerve-currents reads off the outer world.

Again, if this theory be true, the same physical antecedent ought to produce the same mental states, which is far enough from being true. The same words spoken in the same way may be praise or

insult, and the mental state varies accordingly. If struck by accident we have one feeling; if struck on purpose we have quite another. The physical antecedents are the same; why are the results various? There are myriad facts of this nature, none of which can be explained by a mechanical correlation of thought and motion. A discriminating, judging mind, back of nerve-currents, is the only possible explanation.

The theory fails, then, to explain even those mental states which stand directly related to physical antecedents; but it breaks down completely when it attempts to explain those psychical states which have no direct physical antecedents, and which constitute by far the greatest part of our conscious experience. One sits in the twilight and muses. Pictures come and go. He wanders again through scenes, once familiar, but which now are many miles and years away. The friends of his childhood look in upon him, and tones heard long ago re-vibrate on his ear. The vast dim halls of memory light up, and from the niches where stand the images of dead affection, step forms of life, and fall into his arms once more. Faithful hearts driven asunder by necessities too sharp to be resisted meet again, and the living man tells the dead of his loneliness and longing. What is the physical antecedent of this, and similar activity? It is a world of our own creation in which we pass most of our time. What physical ante-

cedents can be shown to be the creator? That there are any is pure assumption without the shadow of proof.

Mr. Spencer does indeed offer the lame and impotent suggestion, that this activity, though it does not correlate directly with the physical forces, does correlate with the vital, which in turn correlate with the physical ; and that thus all mental action comes back ultimately to the physical world. The proof is that mental action is accompanied by nervous waste, and hence the two are identical. But, two difficulties meet us in accepting this reasoning : first, that nervous waste may be effect instead of cause, and hence explains nothing ; and, second, that the assumption that it is the cause, is, first, a bald begging of the question, and, next, is no explanation in any case. The combination of a few grains of carbon, nitrogen, etc., throws no light on mental phenomena.

Again, according to this theory there can be no such thing as self-determination, and if there is such a thing the theory is false. Mr. Spencer admits this, and on the ground that freedom is destructive to his theory he distinctly denies its possibility. Once, indeed, for the sake of a fling at an opponent's view, he objects to that view that it teaches a most rigid necessity in all thought and action ; but, after he has fittingly rebuked such teaching, he falls back on the same doctrine. But we have already seen enough to make us suspect that Mr. Spencer is not always the

most reliable teacher ; let us then appeal from his decision. Can the soul initiate action or can it not ?

The appeal is to the universal consciousness, and the answer is undoubted. Whatever theory it may upset, the soul is self-determinant. It can act, or not. It can act in this direction, or in that. It avails nothing to say that it cannot act without a motive ; motives are reasons for action, not causes, in philosophical sense. It is equally useless to say that without the physical forces the volition could not be carried out. The soul manifests itself through material media, and of course can do so only when the so-called material forces are present. But what was it that set the muscles to contracting and forces to working ? What was it that overturned the original equilibrium and precipitated effort in this direction instead of that ? Did the forces set themselves to work, or was there a controlling cause behind them ? Which supposition is true ? The latter, the universal consciousness being witness, and that hidden cause, as Dean Alford would say, "that's me."

There is indeed a simplicity in this doctrine of correlation which is very attractive. To begin with only matter and attraction, and mount by successive steps through chemistry and physiology, until not only matter and force, but thought and mind also, are under our feet—until love, conscience, and faith fall into line with the physical sciences, this is certainly an attractive

programme—it offers to do so much with such a small capital! Given the raw rudiments of matter and force, and an unlimited supply of time, and there will be no difficulty in grinding out an angel. Unfortunately, it cannot be done. Mental science cannot be studied as a continuation of physical science. There is no doubt a psychological value in physiological research, but such research can never blossom into psychology. As I have previously pointed out, if it were possible to observe all that passes in the body, and gaze to the center of the brain, we should gain no mental facts. We should see motion, not sensation; vibration, not thought. Motion in the spinning of brain molecules, or the passage of nerve currents, would be all that the sharpest observer could detect; nor would there be any thing in this to suggest the world of thought beyond. This can be reached only through self-consciousness; indeed all fact is reached only through consciousness. Physiology may boast as it will of the light it has thrown upon mental problems; psychology alone makes physiology possible.

Now the soul clearly and emphatically distinguishes itself, both from the external world and from the organism which it inhabits. It rules the latter, and causes it to do its bidding; and even in those things in which the soul is subject to the body, it no less clearly distinguishes itself from the body. It consciously resists sleep, weakness, fainting, disease;

and even when it is overborne and conquered, it still testifies to its independent being.

In every act of knowledge, too, the soul implicitly affirms for itself a separate existence. The mind is implicitly given in all knowledge, as the eye and ear are postulated in all seeing and hearing ; but so unobtrusive is the mental affirmation that men fall into the folly of supposing that physical science, which mental science alone makes possible, can displace the latter. In every act of knowledge two things are always given—the knower and the known—and they are given as distinct from each other. We may restrict our attention to the subject, and the result will be mental science ; or we may give it to the object, and the result will be physical science. But in every act of knowing both are given, and given, I think, in exact equipoise. No discredit, then, can be cast on the one, without also destroying the other. Hence physical science and mental science are twins, and, like the Siamese twins, inseparable. The very nature of the cognitive act renders it impossible to arrange them in linear order, and the science which attempts such an arrangement must commit both logical and psychological suicide. The discredit cast on the subjective does and must destroy the objective. I submit, then, that the linear arrangement of the sciences which Mr. Spencer contemplates is psychologically impossible.

There are some, however, who, while admit-

ting the fact of this antithesis, deny that it is trustworthy. To be sure the mind does distinguish itself from the scene, but this distinction represents no reality in the nature of things. The so-called object is but a representation which the mind makes to itself, through the operation of its own laws. I believe, on the contrary, that an examination would show that this primary distinction cannot be argued away, but that it is sure beyond all question. If either member of this antithesis is to be destroyed, it must be the objective. The subjective element is given beyond all possibility of doubt. Self as perceiving, is the most fundamental datum of consciousness. The object can be reached only by accepting the testimony of the subject; deny that testimony, and the universe disappears in a bottomless pit of nihilism. I insist upon it, the subjective element must stand, to make any science possible. The only alternative is to admit the distinction, or to deny the object; and either would be fatal to Mr. Spencer's theory. In the last analysis, materialistic science is a contradiction.

And, strangely enough, no one insists upon this distinction more strongly than Mr. Spencer himself. He says:

"Where the two modes of being which we distinguish as subject and object have been severally reduced to their lowest terms, any further comprehension must be an assimilation of these lowest

terms to one another, and, as we have already seen, this is negated by the very distinction of subject and object, which is itself consciousness of a difference transcending all other differences. So far from helping us to think of them as of one kind, analysis but serves to render more apparent the impossibility of finding for them a common concept—a thought under which they can be united.”—Vol. i, p. 157. “That a unit of feeling has nothing in common with a unit of motion becomes more than ever manifest when we bring the two into juxtaposition.”—P. 158. Again he says: “Nevertheless it may be as well to say here, once for all, that if we were compelled to choose between the alternatives of translating mental phenomena into physical phenomena, or translating physical phenomena into mental phenomena, the latter alternative would seem the more acceptable of the two.”—P. 162.

If I had not been aware beforehand of Mr. Spencer's almost supernatural appetite for self-contradiction, I should have thought on reading these passages that he intended to take his own advice, and “rest content with that duality of them which our constitution necessitates.” But to do this would be to destroy his theory, and that is too much to ask of any one. Accordingly, though “a unit of feeling has nothing in common with a unit of motion,” and though “analysis but serves to render more manifest the impossibility of finding for

them a common concept, and though "the antithesis of subject and object is never to be transcended while consciousness lasts," Mr. Spencer nevertheless assures us that "it is one and the same ultimate reality which is manifested to us subjectively and objectively."—P. 627. How he found it out I don't know; it clearly could not have been while he was conscious, for the distinction "is never to be transcended while consciousness lasts." Luckily, however, Mr. Spencer gives us a much more concrete statement as to the way in which subject and object are united in the following paragraph:

"For just in the same way the object is the unknown permanent *nexus*, which is never itself a phenomenon, but is that which holds phenomena together; so is the subject the unknown permanent *nexus*, which is never itself a state of consciousness, but which holds the states of consciousness together." This is the definition of the subject; and then, though it is "unknown," he proceeds to show what it is: "For, as shown in the earlier part of this work, an idea is the psychical side of what on its physical side is an involved set of molecular changes propagated through an involved set of nervous plexuses. That which makes possible the idea is the pre-existence of these plexuses so organized that a wave of molecular motion diffused through them will produce, as its psychical correlative, the components of the conception in due order and degree. This idea lasts while the

waves of molecular motion last—ceasing when they cease ; but that which remains is the set of plexuses. These constitute the potentiality of the idea, and make possible future ideas like it. Each such set of plexuses perpetually modified in detail by perpetual new actions, capable of entering into countless combinations, and capable of having its several parts variously excited just as the external object presents its combined attributes in various ways—is thus the permanent internal *nexus* for ideas answering to the permanent external *nexus* for phenomena.”—Vol. ii, p. 484.

Thus the great distinction of subject and object vanishes, and self is resolved into the organism. The distinction disappears ; though Mr. Spencer declares it cannot be interpreted away. The assimilation is made ; though he says that analysis but serves to make manifest its impossibility. Units of feeling are resolved into units of motion, though the two have nothing in common. Mr. Spencer insists that the criterion of truth is the impossibility of conceiving the opposite ; and argues this at great length against the skeptics and idealists. It appears that he has changed his mind since he wrote “First Principles,” for then the inconceivability of the opposite was no proof at all—at least, in the earlier part of the work. But since this is the criterion of truth, it would seem that a distinction which is insisted upon as the most fundamental in our mental operations,

ought to be accepted as real. But this would put mind outside of the physical chain, and accordingly Mr. Spencer, in the teeth of all logic, denies the distinction. When it suits his purpose, he admits the testimony of the mind; when it does not, he proceeds to worry and bully it out of countenance. All that the mind says in his favor is true, all that it says against him is false—this is Mr. Spencer's position.

To this the associationalists reply that the idea of subject and object, the distinction of myself from the world, is of comparatively recent origin; and, instead of being simple, is consolidated from millions of experiences which stretch back through unknown ages. There was a time in the history of mental evolution when this distinction was unknown. These ideas then are not elementary but highly complex, and nothing can be built upon them.

This alleged fact is only a fancy, and implicitly begs the question; but even if we admit it, the argument is not helped. Indeed, this constant assumption of the experience-philosophers, that every thing must be measured in its beginnings, is a profound fallacy, if not a gross logical imposition. When we refer to the laws of thought as valid for all space and time, and to the law of conscience as binding upon all moral beings, they seek to throw discredit upon these ideas by showing how they have been built up. Do you see that jelly quiver when touched? that is

the raw material of mind. Do you see that cringing cur? that is the dawn of the moral sentiment.

But, gentlemen, what do you mean? You, who talk of development—tell us plainly whether we are developing faculty, knowledge, power; or whether we are developing illusion, delusion, and baseless dreams. Give us a plain answer here, and we shall know what to say. If the former supposition be true, then these faculties as we have them, and not as they appeared in some early cell, or even as they manifest themselves in infancy, but as they are to-day here in their highest form, in their latest utterances, are the most trustworthy. If we are indeed developing, we need not inquire into the belief of the first polyp to reach the truth; but the last utterances of our faculties, as they have disengaged themselves from mental chaos, must be accepted as of the highest authority. The product must be judged by the finished work, and not by its raw beginnings.

But if the latter supposition—that we are only growing into illusion—be true, then we must seek truth in the minds of pre-human apes, or rather in the blind stirrings of some primitive pulp. In that case we can indeed put away all our science, but we must put away the great doctrine of evolution along with it. The experience-philosophy cannot escape this alternative; either the positive deliverances of our mature consciousness must be accepted as they stand, or all truth must be declared impossible.

What then, I ask again, will Mr. Spencer do with this plain distinction which the soul makes between itself and all else? He can admit it, which is realism; he can deny the object, which is idealism; he can deny the subject, which must end in nihilism. But any one of these alternatives would be fatal to his system.

Once again Mr. Spencer's system breaks down. Not even the wonderful flying leaps of his peculiar logic serve to carry him across the gulf which separates mind and matter. The plainest facts of mental experience, and the most emphatic utterances of consciousness, dispute his right of way. If, then, we were inclined to be severely logical, we might issue an injunction restraining Mr. Spencer from any further advance until this pass has been securely bridged. But inasmuch as our logical clemency has before been extended, even so far as to wink at a multitude of logical sins, let us once more exercise our royal prerogative, and graciously grant to Mr. Spencer the beginnings of life and sensation; and, perhaps, with this capital, he will be able to accomplish something.

His first attempts, however, awaken a fear that this royal clemency will be abused. Having collected a multitude of facts concerning nervous structure and function, and having also "grouped together the inductions drawn from a general survey of mental states and processes," Mr. Spencer declares that he is "prepared for a deductive interpretation." The

nature of this deduction is shadowed forth in the following quotation :

“ If the doctrine of evolution is true, the inevitable implication is that mind can be understood only by observing how mind is evolved. If creatures of the most elevated kinds have reached those highly integrated, very definite, and extremely heterogeneous organizations they possess through modifications upon modifications accumulated during an unmeasurable past—if the developed nervous systems of such creatures have gained their complex structures and functions little by little—then, necessarily, the involved forms of consciousness, which are the correlatives of these complex structures and functions, must have arisen by degrees. And as it is impossible truly to comprehend the organization of the body in general, or of the nervous system in particular, without tracing its successive stages of complication ; so it must be impossible to comprehend mental organization without similarly tracing its stages. Here, then, we commence the study of mind as objectively manifested in its ascending gradations through the various types of sentient beings.”—Vol. i, p. 291.

This is the key-note of all that follows, and a type of evolution logic. Mr. Spencer, on the strength of this paragraph, begins with the yeast plant and red snow alga, and traces life and mind from these humble beginnings up to man. There are, however, some objections to the procedure.

First, all knowledge begins at home. All that we know is known in consciousness, and whatever cannot report itself there must remain forever unknown. All that is known of the outer world, is known only through modifications of consciousness; and all that we know of the mental operations of others, can be known only by assimilating them to our own. How do we know that the motions of animals have any psychological meaning at all? It is only as we infer that like motions mean the same in them as in us, it is only as we know our own mind, that we can take the first step toward a knowledge of mind in the lower orders. Now, since this is so, since human psychology must precede all others, and since the psychology of the yeast plant and the polyps is, to say the least, a matter of pure conjecture, I submit that it is not wise to give such inquiries any great weight. To attempt to use them to throw discredit upon human psychology, is self-destructive; for their psychological value depends upon the truth of our self-knowledge.

Still another objection arises. This procedure is warranted only on the assumption that evolution is an established fact; whereas I understand that Mr. Spencer is trying to prove the doctrine. What is the proof of the doctrine? Why, all these arguments, running through a thousand pages. But the arguments are worthless without the assumption of the doctrine. The arguments support the doctrine, and

the doctrine supports the arguments. Do you object to this? It is no more than fair play. One good turn deserves another. And this is "severe logic," this is the "Modern Aristotle." The mutual attitude of both teacher and taught, in this "New Philosophy," is fitly represented only by that ancient couplet :

"Open your mouth and shut your eyes,
And I'll give you something to make you wise."

That the conscious *ego* is a being capable of knowledge and thought, and able to direct its own activity into such channels as it may choose, is a conception which, to Mr. Spencer, is supremely "pseud." He denies it in the plainest terms, and insists that mind is composed throughout of feelings, consolidated or otherwise. Of course, he recognizes the existence of self as constantly as any one. In this way he gives some scanty plausibility to his argument; but as soon as he is confronted with self as a witness against him, he unceremoniously turns the "pseud-idea" out of doors. Plainly, the best established facts of consciousness must expect no quarter whatever from the "New Philosophy," if they are so imprudent as to raise any objections. It would not be very strange if the facts of consciousness repudiated the "New Philosophy" with equal emphasis.

Feelings are all in all. The ultimate units of matter when differently combined build up the chemical elements, the crust of the earth, and all the variety

of organic life ; so feelings, which are the ultimate mental unit, compose by their different combinations all that is in the mind, and originate all its powers. The problem is to show that a string of feelings, which existed long before there was any one to have them, at last becomes conscious of itself and of its constituent parts, apprehends their relations to one another, reflects upon them, and draws conclusions from them, and all the while is but a feeling, and the process is but a feeling. In this way consciousness, the belief in self and the outer world, the abstract processes of thought, etc., are manufactured.

We should have less difficulty with this theory if it were clearly shown that a feeling can exist apart from a subject. A free feeling apart from a conscious subject, is inconceivable ; just as a free thought apart from a thinker is inconceivable. Such a thing might be possible in the depths and deep night of the unknowable ; but it is not possible in the realm of rationality. The feelings are introduced to create the subject ; but the feelings themselves are inconceivable except as belonging to a conscious subject. This may be a weakness of our thought, but it is an inveterate one ; and until it be disproved, we shall feel constrained to view it as a power. Every thing cannot be granted to the needs of Mr. Spencer's system.

I am ready to learn ; but before I can take the oath of allegiance to this doctrine, another difficulty must

be resolved. Thought, and sensation, are given in consciousness as very different things. To have a feeling is one thing, to reflect upon it, to compare it with others, to draw conclusions from its perceived relations, etc., these seem to be quite another. What kinship is there between a sensation, and a purely intellectual operation, such as the study of a mathematical problem, or any other of the reflective processes of thought? If we are to rely upon our present consciousness, they have no common measure. A perception of things through sensation is one act; a perception of their relations through comparison and reflection, a generalization of these relations into laws, and a combination of these laws into a system, this is an activity of another kind. The only reason for denying it is found in the exigencies of a false system—a reason which logic does not recognize.

Besides, too, in all this activity the *ego* plays an important part. It is conscious of itself as active and controlling, and it insists upon saying so. This is probably an unseemly impertinence, at all events, a great unkindness, because it stands very much in the way of the system; and yet, in opposition to both courtesy and Mr. Spencer, it insists upon itself as active and controlling. So emphatic is this self-assertion that, if it be false, we seem to have no test of truth whatever, save the unsupported *dictum* of Mr. Spencer. These objections would probably not

have much weight with a philosopher of the "New School;" but surely a philosophy whose first principles deny all our primary beliefs, ought to be received with caution.

But we must not be too scrupulous, and, besides, a vigorous profession of an obnoxious creed is said to help one's faith amazingly. The experience-philosophy has steadily resisted these distinctions, and has sought to show how thought and reason and self-determination are only sensations that have grown proud and forgotten their origin. The great instrument for the contemplated reduction is the association of ideas. Sensations and feelings cluster together, and so pass into thought. The method is as follows:

"The cardinal fact to be noted as of co-ordinate importance with the facts above noted is, that while each vivid feeling is joined to but distinguished from other vivid feelings, simultaneous or successive, it is joined to and identified with faint feelings that have resulted from foregoing similar vivid feelings. Each particular color, each special sound, each sensation of touch, taste, or smell, is at once known as unlike other sensations that limit it in space or time, and known as like the faint forms of sensations that have preceded it in time—unites itself with foregoing sensations, from which it does not differ in quality but only in intensity.

"On this law of composition depends the orderly

structure of mind. In its absence there could be nothing but a kaleidoscopic change of feelings—an ever transforming present without past or future. It is because of this tendency which vivid feelings have severally to cohere with the faint forms of all preceding feelings like themselves that there arise what we call ideas. A vivid feeling does not by itself constitute a unit of that aggregate of ideas entitled knowledge. Nor does a single faint feeling constitute such a unit. But an idea, or unit of knowledge, results when a vivid feeling is assimilated to, or coheres with, one or more of the faint feelings left by such vivid feelings previously experienced. From moment to moment the feelings that constitute consciousness segregate—each becoming fused with the whole series of others like itself that have gone before it; and what we call knowing each feeling as such or such is our name for this act of segregation.

“The process so carried on does not stop with the union of each feeling, as it occurs, with the faint forms of all preceding like feelings. Clusters of feelings are simultaneously joined with the faint forms of preceding like clusters. An idea of an object or act is composed of groups of similar and similarly related feelings that have arisen in consciousness from time to time, and have formed a consolidated series of which the members have partially or completely lost their individualities.”—Vol. i, p. 183. “Consider now, under its most general form,

the process of composition of mind described in foregoing sections. It is no more than this same process carried out on higher and higher platforms, with increasing extent and complication. As we have lately seen, the feelings called sensations cannot of themselves constitute mind, even when great numbers of various kinds are present together. Mind is constituted only when each sensation is assimilated to the faint forms of antecedent-like sensations. The consolidation of successive units of feeling to form a sensation is paralleled in a larger way by the consolidation of successive sensations to form what we call a knowledge of the sensations as such or such—to form the smallest separable portion of what we call thought as distinguished from mere confused sentiency.”—Vol. i, p. 185.

We have, in this extract, a complete outline of the associational doctrine, and an almost complete list of its errors. The process here described is sufficient to account for all the mind's beliefs and operations.

Our first criticism upon it is that the language in which the doctrine is expressed, betrays it. “Each particular color, each special sound, each sensation of touch, taste, or smell, *is at once known* as unlike other sensations that limit it in space or time, and known as like the faint forms of certain sensations that have preceded it.” Who is it that knows these sensations as like and unlike? Who is it that remembers the faint forms of past sensation? Who is it that sep-

arates these various feelings into their appropriate groups? The object of these groupings and "segregations" is to account for thought, memory, judgment, etc., and, lo! a thinking, judging, recognizing mind is on the spot to attend to its own birth. It would hardly be surprising if, under such favorable circumstances, the process proved successful.

Again, Mr. Spencer will not allow us to know sensations until they are "segregated," but insists that a knowledge of them as like or unlike must precede segregation. How, indeed, things can be known as like or unlike when, first, we know nothing about them, and, second, when there is no one to know them, does not very clearly appear. There is also some difficulty in understanding how memory can be built up by a process which assumes it at the start; nor can self-consciousness be very far away when we begin to remember these sensations as "past experiences." Yet these are the absurdities into which the associationalists have always fallen. This association of ideas implies the very things which it is supposed to explain away. What associates the ideas? What distinguishes them as like and unlike? What recognizes them as "past experiences?" What is it which, in all perception, so combines tactual, visual, and other impressions, that the object presents itself as a unit in consciousness? At this point the associationalists have always left a fatal gap in their system. To suppose that the ideas and sensations know each other

as like and unlike, and then enter into combination, is absurd ; yet they must either do this, or refer the association to the activity, partly intentional, partly constitutional, of the soul itself.

To escape this alternative, Mr. Spencer ventures upon the astounding proposition that the association takes place primarily, not in the mind, but in the nervous system. Like nervous states get together, and difference themselves from others ; and whenever one of these states comes into consciousness, it drags all its kindred along with it. He expounds the doctrine thus :

“Changes in nerve-vesicles are the objective correlates of what we know subjectively as feelings ; and the discharge through fibers that connect nerve-vesicles, are the objective correlates of what we know subjectively as relations between feelings. It follows that just as the association of a feeling with its class, order, genus, and species, group within group, answers to the localization of the nervous change within some great mass of nerve-vesicles, within some part of that mass, within some part of that part, etc. ; so the association of a relation with its class, order, genus, and species, answers to the localization of the nervous discharge within some great aggregate of nerve-fibers, within some division of that aggregate, within some bundle of that division. Moreover, as we before concluded that the association of each feeling, with its exact counterparts in past experience,

answers to the re-excitation of the same vesicle or vesicles ; so here we conclude that the association of each relation with its exact counterparts in past experience answers to the re-excitation of the same connecting fiber or fibers. And since, on the recognition of any object, this re-excitation of the plexus of fibers and vesicles before jointly excited by it, answers to the association of each constituent relation and each constituent feeling with the like relation and the like feeling, contained in the previous consciousness of the object, it is clear that the whole process is comprehended under the principle alleged. If the recognized object, now lacking one of its traits, arouses in consciousness an ideal feeling answering to some real feeling which this trait once aroused, the cause is that, along with the strong discharge through the whole plexus of fibers and vesicles directly excited, there is apt to go a feeble discharge to those vesicles which answer to the missing feeling, through those fibers which answer to its missing relations, involving a representation of the feeling and its relations."—Vol. i, p. 270.

As a work of the creative imagination, this extract must certainly rank very high ; but as a scientific statement it can hardly be considered a success ; for, in the first place, neither psychology nor physiology knows any thing about the process here indicated. When the brain is examined with a microscope, there are no indications that it is even capable of vibrating

in the fashion postulated, to say nothing of exhibiting all the wonders which Mr. Spencer declares to be there. Before we can accept this account it must be shown that there is a nerve-vesicle answering to every idea; and next it must be shown that, for every apprehended relation, there is a fiber connecting the vesicles which represent the related terms. There is, and can be, no proof whatever of these statements. Imagination, prompted by the necessities of the system, is responsible for the whole account. It is the doctrine which suggests the facts, and not the facts which suggest the doctrine. The same beggarly begging of the question, so palpable throughout the treatise, underlies this whole account.

But suppose we admit that there is a nerve-vesicle for each idea, still the association of ideas is not explained. What is it which associates the vesicles? What separates them into like and unlike? Has the nervous system the power of recognizing relations? of appreciating difference? of storing up in an appropriate place the peculiar nervous combination answering to a given state of thought? That would be to attribute to the nervous system the very powers of memory, judgment, etc., which it is expected to explain. But Mr. Spencer is prepared with an answer. This separation of nerve-vesicles is due to the law of segregation. I have already explained this law in the last chapter and given Mr. Spencer's illustrations. The same wind carries off dead leaves and

allows the living ones to remain on the tree. A stream of water washes sand and mud from among stones and segregates them. Now because dead leaves are blown away, and sand is washed out of gravel, therefore the nerve-vesicles answering to like ideas get together, and pull one another back and forth through consciousness. It seems incredible that Mr. Spencer should ever have deluded himself with such vague and unmeaning analogies as this. That he has deluded others, also, is the highest possible proof of his statement that "most men do not think, but only think that they think." Surely it is a sublime and touching faith in the great doctrine of evolution, which enabled one to accept as science, such puerilities as these.

But Mr. Spencer attempts another explanation of association. "As the plexuses in these highest nervous centers, by exciting in distinct ways special sets of plexuses in the inferior centers, call up special sets of ideal feelings and relations, so by simultaneously exciting in diffused ways the general sets of plexuses to which these special sets belong, they call up in vague forms the accompanying general sets of ideal feelings and relations—the emotional background appropriate to the general conception. In the language of our illustration, we may say that the superior nervous centers in playing upon the inferior ones, bring out not only specific chords and cadences of feelings, but, in so doing, arouse reverberating

echoes of all kindred chords and cadences that have been struck during an immeasurable past—producing a great volume of indefinite tones harmonizing with the definite tones.”—Vol. i, p. 571.

This statement, which recalls the doctrine of Aristoxenus, that mind is the time of the organism, is the completion of the statement on page 125, that emotions are only remembered sensations, and are aroused by wandering currents which, in racing up and down the nerves, hit upon the vesicles that belong to the old sensations.

In reply, it is sufficient to say of it, first, that there is no proof possible in the nature of the case ; and second, that this view does not explain why the “specific chords and cadences of feelings” should only “arouse reverberating echoes of all kindred chords and cadences ;” nor does it explain why these vagrant nerve-currents should hit upon only those emotions which harmonize with the specific conception. The doctrine is that a nerve current passes upward to the brain and appears in consciousness as a vivid feeling, that is, a sensation. But the same current after producing the sensation proceeds to “reverberate ;” it diffuses itself in feebler currents through the nervous system, and re-excites the vesicles which answer to similar sensations in the past, and thus produces faint feelings, that is, emotions. Wonderful nerve-current to hit upon the proper vesicles ! It is conceivable that mental chaos might

result from such a process, but certainly mental order cannot. And thus Mr. Spencer goes on, first, confusing himself; second, confusing the problem; and third, and most wonderful confusion of all, he mistakes this universal confusion for a solution.

The same process is supposed to explain memory. When any sensation or idea is aroused in consciousness, kindred ideas or sensations are brought out of experience by the process described; and this is memory. The explanation misses the chief distinction of memory. To remember a thing, is not to have the same idea or thought again—this might be accounted for by the laws of association; but it is to have it with the consciousness of having had it before. This relation of experience to self is the difficult part of the question, and is entirely ignored in the explanation. Mr. Mill, with great frankness, confessed that the explanation of memory surpassed the resources of his philosophy. How a string of feelings should become conscious of itself as having a past, he declared to be a great mystery, and one which he could not fathom. Yet it is a question which the associationalist must solve, or surrender. Knowledge is not knowledge until it is related to self. It is only the enduring and identical *ego* which gives unity to experience, and makes memory possible. It is not until the conception of an abiding self is thrown among the ever-shifting shades of feeling, that any backward glance can be cast upon yes-

terday, or any outlook upon to-morrow. Here, in this fact of memory we have a confirmation of the universal belief in an enduring self.

But Mr. Spencer recognizes no difficulty whatever. Indeed, he does not even seem to have understood what the fact implies. If he had he would probably have explained it in this way : Every idea has a nerve-vesicle answering to it, and that vesicle constitutes its only existence. To the idea of self, therefore, there must be an enormous vesicle, because it is such a great idea. And, since every mental relation answers to a fiber in the brain which connects the vesicles representing the ideas between which the relation is perceived, we must conclude that the reason why self appears in all memory is that there is an indefinite number of fibers connecting the vesicle which stands for self, with the other vesicles which represent all our various experiences. Whenever, then, one of these vesicles is excited, a discharge must pass along the connecting fiber to the vesicle which stands for self, and hence both ideas must appear in consciousness together. This explanation is in complete harmony with the hypothesis of evolution in general ; and whoever will duly weigh the evidence must see that nothing short of an overwhelming bias in favor of a preconceived theory can explain its non-acceptance. This account is as good as any that Mr. Spencer has given. It has just as much support from physiology or psychology as his

own explanations have. Hartley's doctrine, of vibrations and vibratiuncles, is no more baseless than this so-called science; and, indeed, they do not differ materially, except in terms.

But if all these absurdities came to pass, the problem is only confused, not solved. Sensation is sensation, and nothing more. A cluster of sensations is sensation still, and in whatever way sensation may be massed, it acquires no new character. Even if it were possible to conceive of a feeling which is not the feeling of a conscious subject, there is no warrant except the desperate extremities of a false system, for believing that feelings change their nature by being massed. Consciousness makes the clearest and sharpest distinctions between feeling and thinking; but consciousness has not any claim to respect from a philosopher of the "New School."

In short, the explanations of this philosophy consist entirely in calling the most diverse powers and operations of the mind sensations, and then calling sensations nerve-currents. Mr. Spencer, when he meets with a difficulty, simply re-names it, and the work is done. If ideas associate, he explains it by the magic word "segregation." If they unite to form a unit of knowledge, it is a case of "integration." If knowledge becomes more definite, it is called "differentiation." And after he has grouped every thing under these vague and un-

meaning terms, and has worked himself into a fit state of mental confusion in the process, he seems to think that he has explained something. To explain any grouping by segregation, is only to offer the very fact to be explained as an explanation; and the same is true for the other cant words of the scheme which are made to cover such a multitude of logical sins: they all involve the very problem they pretend to solve. Now, I hold that the only value of psychology lies in its speaking clearly and directly to self-consciousness; but the associational philosophy does not even pretend to do that. Every one of its characteristic explanations flies right in the face of our present consciousness, and when we complain of that, an appeal is made to the unknown. Mr. Mill requires us to look in upon the mind of the infant as it lies in the nurse's arms; and, as we cannot do this, there is nothing for us to do but to accept Mr. Mill's statements or fancies about the matter. Mr. Spencer will have us go back through "countless ages;" and tells us that, if we could have been there, we should have seen all that he claims. This is a great beauty of this philosophy. It works its wonders before the critic comes, and when he appears he is blandly told that it is too late. The wonders which have been wrought for him, and in him, are such as to render self-knowledge impossible. All its ingenuity is expended, not in explaining our present consciousness, but in explain-

ing it away. There is nothing left for us now, but to accept the equivalents which these philosophers choose to give; and if the butchered members of our knowledge have no resemblance to the living form, they are, at least, as life-like as could be expected after the process. We must be content to walk by faith hereafter, and must no longer hope to walk by sight. If at any time the suspicion should cross our minds that this philosophy is a forgery, we cannot indeed appeal to consciousness or experience for support; but we have the assurance of the philosophers that this is the only genuine autobiography of mental evolution. This is, to be sure, the only warrant it has; but, except for those who have an "overwhelming bias," this is more than enough. As was to be expected, the difficulties thus removed from criticism are precisely those which this philosophy finds it most difficult to answer. When Mr. Spencer sought to establish the identity of thought and motion, it was done "in a superior nerve-center in a mysterious way;" but the belief in causation and logical laws was provided for "untold ages" ago. Whenever a critical point is reached, Mr. Spencer, in common with all others of this school, retreats into the unknown, and, with the aid of an obliging "mystery," works out his system secure from all molestation. The strategy! the generalship! The very least that should be decreed to such masterly tactics is an ovation, if indeed they do not deserve a triumph.

I utterly distrust this doctrine which begins with sensations, and builds knowledge by combining them. The subjective unity of self must be given before knowledge of any kind is possible ; but, even as applied to external things, the doctrine seems to me to invert the order of experience. According to this teaching, we have a knowledge of sensations long before we have a knowledge of things, and it is only an extended experience of feelings that suggests external things. On the contrary, I believe that our knowledge postulates being at the very start. Our first knowledge is of things, and the knowledge of sensations and qualities is a later birth, and is impossible until considerable advance in abstraction has been made. There is a primitive and constitutional synthetic action of the soul, which gives us qualities always in combination ; and it is only by a later analysis that we come to a knowledge of attributes, etc. Mr. Spencer has all along been arguing against this view ; but, to our great pleasure, it appears that he also holds the same opinion—a very happy example of his belief that there is a soul of truth in all things false. He says :

“The postulate with which metaphysical reasoning sets out is that we are primarily conscious only of our sensations, that we certainly know we have these, and that if there be any thing beyond these, serving as cause for them, it can be known only by inference from them.

"I shall give much surprise to the metaphysical reader if I call in question this postulate, and the surprise will rise into astonishment if I distinctly deny it. Yet I must do this. Limiting the proposition to those epiperipheral feelings produced in us by external objects, (for these alone are in question,) I see no alternative but to affirm that the thing, primarily known, is not that a sensation has been experienced, but that there exists an outer object. Instead of admitting that the primordial and unquestionable knowledge is the existence of a sensation, I assert, contrariwise, that the existence of a sensation is an hypothesis that cannot be framed until external existence is known. This entire inversion of his conception, which to the metaphysician will seem so absurd, is one that inevitably takes place when we inspect the phenomena of consciousness in their order of genesis—using, for our 'erecting glass,' the mental biography of a child, or the developed conception of things held in common by the savage and the rustic."—Vol. ii, p. 369.

Mr. Spencer then goes on to show that with children, and rustics, and all who have not been disturbed by metaphysical reasonings, the certain knowledge is that there exist external things, and that these are directly known; while sensations, attributes, etc., etc., are utterly unknown. With some qualifications, this statement may be accepted

as true ; but if it is true, then mental evolution takes place in a way directly opposite to that which this philosophy assumes, and the doctrine falls to the ground. If the account is not true, the argument for an external world, which Mr. Spencer bases upon it, vanishes. In either case his system suffers.

But, before passing on to other difficult questions, let us rest and amuse ourselves by the following bit of pleasantry. Mr. Spencer's account of nerves and nervous systems we found extremely luminous ; but even that cannot compare with the following sun-clear explanation of frowning. To appreciate it fully, we must remember that Mr. Spencer's philosophy assumes to prove the doctrine of evolution ; and that it is one of the first principles of logic that to assume the point in dispute is inadmissible. Now for the explanation :

“ If you want to see a distant object in bright sunshine, you are aided by putting your hand above your eyes ; and in the tropics, this shading of the eyes to gain distinctness of vision is far more needful than here. In the absence of shade yielded by the hand or by a hat, the effort to see clearly in broad sunshine is always accompanied by a contraction of those muscles of the forehead which cause the eyebrows to be lowered and protruded ; so, making them serve as much as possible the same purpose that the hand serves. The use of a sliding hood to a telescope, to

shield the object-glass from lateral sight, and especially from the rays of the sun, illustrates the use of the contracted eyebrows when vision is impeded by a glare. Now, if we bear in mind that, during the combats of superior animals which have various movements of attack and defense, success largely depends on quickness and clearness of vision—if we remember that the skill of a fencer is shown partly in his power of instantly detecting the sign of a movement about to be made, so that he may be prepared to guard against it or to take advantage of it, and that in animals, as, for example, in cocks fighting, the intentness with which they watch each other shows how much depends on promptly anticipating one another's motions, it will be manifest that a slight improvement of vision, obtained by keeping the sun's rays out of the eyes, may often be of great importance, and where the combatants are nearly equal, may determine the victory. Here is, indeed, no need to infer this *à priori*, for we have *à posteriori* proof: in prize-fights it is a recognized disadvantage to have the sun in front. Hence we may infer that during the evolution of those types from which man more immediately inherits, it must have happened that individuals in whom the nervous discharge accompanying the excitement of combat, caused an unusual contraction of those corrugating muscles of the forehead, would, other things being equal, be the most likely to conquer, and to leave posterity—sur-

vival of the fittest tending in their posterity to establish and increase this peculiarity."—Vol. ii, p. 546.

This account, Mr. Spencer says, "is not obvious, and yet when found is satisfactory." Yes, about as satisfactory as the doctrine that hens set because the pressure of the eggs serve to relieve a supposed pain in the birds' abdomen ; as satisfactory, perhaps, as the earlier doctrine of appetencies—they all deserve to be put upon the same shelf, for all have about equal support in fact. I have quoted the paragraph because it brings so clearly into view the point to which I have so often referred—the everlasting assumption of the point to be proved, which underlies the entire discussion. Evolution is true—hence matter and mind must be one. Evolution is true—hence when it is necessary to explain the nervous system, he begins to romance on what might have been. Evolution is true—hence to account for emotions, he tells us of vagabond currents which, in their aimless wandering along the nerves, hit upon the vesicles which represent ancient sensations. Evolution is true—hence nerve-vesicles which represent kindred ideas must cling together and coalesce to form compound ideas. Evolution is true—hence to interpret human phenomena we are referred to the quarrels of the early apes. Evolution is true—hence the axioms and forms of thought must be formed by the consolidated experiences of lower forms through an "interminable past." Whatever facts do not harmonize with the theory are

stigmatized as *ex parte*, and their testimony is discredited. There is no fancy or guess too wild or too absurd to be greedily swallowed, if only it support the great doctrine. And on the other hand, there is no fact of nature, no matter how well ascertained; there is no deliverance of consciousness, no matter how universal, which has any rights which the philosopher is bound to respect if it is opposed to his belief. And all this is warranted, because evolution is true. The evidence brought to prove the theory gets all its force as evidence from the assumption that the theory is true. It is the most fraternal arrangement possible—the evidence proves the theory, and the theory gives weight to the evidence. Truly, all things to him that believeth. A mob of atoms, if they should fall to reasoning, could scarcely do better than this.

But, to return to more serious discussion, the greatest difficulty of the experience-philosophy has yet to be mentioned. To turn sensation into thought, reflection, and consciousness is difficult, but to turn it into action is harder still. How to turn passivity into activity, how to extract from mere sentiency the various forms of conscious effort, has always been a great problem. Why should inactive receptivity transform itself into the idea and fact of conscious power?

Mr. Bain, in his work, introduced a novelty into

his system for the purpose of answering these questions. He postulates a spontaneous activity of the muscles as part of the original outfit of the organism ; and this spontaneity, reduced to shape by experience, explains the difficulty. To this it is sufficient to say that if this activity is strictly spontaneous, it lies without the physical forces ; and if it does not lie without them, it is not spontaneous. In either case, Mr. Bain has not thrown much light upon the subject.

Mr. Spencer, however, cuts the knot. There is no such thing as spontaneity ; because, if there is, his theory fails. This alternative is not to be thought of ; and hence there is nothing left us but to accept Mr. Spencer's statement, that our consciousness of freedom, of being the causes of our actions, is an utter delusion. In reality, every thing which we do is done for us ; the sequence of cause and effect is as rigid here as it is in physics, and the belief that we have any thing to do with our volitions is a superstition that deserves no quarter whatever. It has long been evident that the psychology of consciousness, and that of Mr. Spencer, have nothing in common ; but, inasmuch as consciousness has no rights which the "New Philosophy" is bound to respect, we can only look tearfully on as one after another of our primary beliefs is ruthlessly turned out of doors. Remonstrance would clearly be useless, and might even provoke further indignity. One

knows not what extremes of violence might be resorted to if it should become apparent that we have any "pseud-ideas" concealed about our person, to say nothing of holding a belief in what Mr. Spencer calls "the Hebrew myth." We hold our peace, then, while Mr. Spencer explains how the illusion concerning freedom has arisen :

"Considered as an internal perception, the illusion consists in supposing that at each moment the *ego* is something more than the aggregate of feelings and ideas, actual and nascent, which then exists. A man who, after being subject to an impulse consisting of a group of psychical states, real and ideal, performs a certain action, usually asserts that he determined to perform the action ; and by speaking of his conscious self as having been something separate from the group of psychical states constituting the impulse, is led into the error of supposing that it was not the impulse alone which determined the action. But the entire group of psychical states which constituted the antecedent of the action, also constituted himself at that moment—constituted his psychical self, that is, as distinguished from his physical self. It is alike true that he determined the action, and that the aggregate of his feelings and ideas determined it ; since, during its existence this aggregate constituted his then state of consciousness, that is, himself. Either the *ego* which is supposed to determine or will the action, is present in consciousness

or it is not. If it is not present in consciousness, it is something of which we are unconscious—something, therefore, of whose existence we neither have nor can have any evidence. If it is present in consciousness, then, as it is ever present, it can be at each moment nothing else than the state of consciousness, simple or compound, passing at that moment. It follows inevitably that when an impression received from without makes nascent certain appropriate motor changes, and various, of the feelings and ideas which must accompany and follow them; and when, under the stimulus of this composite psychical state, the nascent motor changes pass into actual motor changes, this composite psychical state which excites the action is at the same time the *ego* which is said to will the action.”—Vol. i, p. 500.

This description shows us how the illusion has arisen, and on the next page we learn how it has been strengthened :

“This subjective illusion in which the notion of free-will commonly originates is strengthened by a corresponding objective illusion. The actions of other individuals, lacking as they do that uniformity characterizing phenomena of which the laws are known, appear to be lawless—appear to be under no necessity of following any particular order, and are hence supposed to be determined by the unknown independent something called the will. But this seeming indeterminateness in the mental succession

is consequent on the extreme complication of the forces in action. The composition of causes is so intricate, and from moment to moment so varied, that the effects are not calculable. These effects, however, are as conformable to law as the simplest reflex-actions. The irregularity and apparent freedom are inevitable results of the complexity, and equally arise in the inorganic world under parallel conditions. To amplify an illustration before used : A body in space subject to the attraction of a single other body moves in a direction that can be accurately predicted. If subject to the attractions of two bodies, its course is but approximately calculable. If subject to the attractions of three bodies, its course can be calculated with still less precision. And if it is surrounded by bodies of all sizes, at all distances, its motion will be apparently uninfluenced by any of them : it will move in some indefinable varying line that appears to be self-determined ; it will seem to be *free*."

Passing over for the present the boundless nihilism in the preceding paragraphs, I remark that this doctrine of necessity is here put into far more explicit statement than we commonly find in Mr. Spencer. As a rule, his views are rarely expressed in definite form, so much so that I know of no other author whom it is more difficult to criticise. Leading doctrines are suggested rather than stated, and assumed rather than proved ; and the critic is forced to wade

through a sea of vague and meaningless analogies, in order to reach any precise meaning. But there can be no doubt of the meaning of this quotation. Spontaneity, freedom, is a delusion; and all our effort is the result of complex reflex-action.

· It it were needful, it would be easy to criticise Mr. Spencer's account of reflex-action; and to show that, in concluding it to be the reality in all seeming self-determination, he has once more mistaken the confusion of a problem for its solution. The truth is, that men are automata running about on two legs, with the added absurdity of supposing themselves free. A book lies before me on the table. I think I can draw it toward me or push it from me, or let it alone. I feel conscious that I can determine to do or not to do; to do this or to do that. But I am mistaken. If I draw that book toward me, it is because I cannot help it. If I push it from me, the fact is proof that I could not do otherwise. If I let it alone, it is because an invincible necessity prevents me from touching it. The manner in which the conflict is decided is as follows: The idea of a book to be drawn arouses a "group of nascent motor changes," the idea of a book to be pushed arouses another and opposing "group of nascent motor changes," and these two groups proceed to fight it out. If the first group wins, the book is drawn; if the second group wins, the book is pushed; if they are equally matched, then, like the ass between the bundles of hay, I let the book

alone. An insulting word is spoken to a man. The physical antecedent is aerial vibrations. These correlate with nerve-currents, which at once start for some superior nerve-center, where an immense amount of molecular motion is disengaged. This, in turn, starts for the muscles of the arm, taking care "to blow up the magazines" of force in the ganglia on its way down. The molecular motion on reaching the muscles quickly becomes mechanical motion; the muscles are violently extended in such a way as to reach the offender, who is forthwith collared and cuffed, and, if the nascent motor changes have so settled the matter among themselves, he is also kicked. This is the true account of this matter, and of all seeming self-determination. One would never have thought it if he had not been told; wherefore for this extension of our knowledge, great thanks are due to Mr. Spencer. Consciousness, of course, contradicts the philosopher; but so much the worse for consciousness.

And lest any one should think that I have misrepresented Mr. Spencer for the sake of ridicule, I commend to him the following paragraph:

"When the automatic actions become so involved, so varied in kind, and severally so infrequent, as no longer to be performed with unhesitating precision—when, after the reception of one of the more complex impressions, the appropriate motor changes become nascent, but are prevented from passing into immediate action by the antagonism of certain other nas-

cent motor changes appropriate to some nearly-allied impression, there is constituted a state of consciousness which, when it finally issues in action, we call volition. Each set of nascent motor changes arising in the course of this conflict is a weak revival of the state of consciousness which accompanies such motor changes when actually performed ; is a representation of such motor changes as were before executed under like circumstances ; is an idea of such motor changes. We have, therefore, a conflict between two sets of ideal motor changes which severally tend to become real, and one of which eventually does become real ; and this passing of an ideal motor change into a real one we distinguish as volition.”—Vol. i, p. 496.

There is warrant enough for all that I have said. Consciousness has no voice in this matter ; observation has no voice in the matter ; fact has no voice in the matter—only unproved and unprovable fancies, and the sore needs of Mr. Spencer’s system, have any claim to be heard. This is the logic of the cuttle-fish ; this is intellectual soothsaying, and, like all soothsaying, can only be received by faith.

Compare also the following account of reason and reasoning :

“For though when the confusion of a complex impression with some allied one causes a confusion among the nascent motor excitations, there is entailed a certain hesitation ; and though this hesitation

continues as long as those nascent motor excitations or ideas of the correlative actions go on superseding one another ; yet, ultimately, some one set of motor excitations will prevail over the rest. As the groups of antagonistic tendencies aroused will scarcely ever be exactly balanced, the strongest group will at length pass into action ; and as this sequence will usually be the one that has recurred oftenest in experience, the action will on the average of cases be the one best adapted to the circumstances. But an action thus produced is nothing else than a rational action."—Vol. i, p. 455.

I had intended to end the quotation at this point, but Mr. Spencer gives such a lucid and convincing illustration of this kind of reasoning that we shall probably understand it much better if we study the example given :

"A snarling dog commonly turns tail when a stone is thrown at him, or even when he sees the stooping motion required for picking up a stone. Suppose that, having often experienced this sequence, I am again attacked by such a dog, what are the resulting psychical processes ? The combined impressions produced on my senses, and the state of consciousness which they arouse, have before been followed by those motor changes required for picking up and throwing a stone, and by those visual changes resulting from the dog's retreat. As these psychical states have repeatedly succeeded one another in experience,

they have acquired some cohesion—there is a tendency for the psychical states excited in me by the snarling dog, to be followed by those other psychical states that have before followed them. In other words, there is a nascent excitation of the motor apparatus concerned in picking up and throwing; there is a nascent excitation of all the sensory nerves affected during such acts; and through these there is a nascent excitation of the visual nerves, which on previous occasions received the impression of a flying dog. That is, I have the *ideas* of picking up and throwing a stone, and of seeing a dog run away—for these that we call ideas are nothing else than weak repetitions of the psychical states caused by actual impressions and motions. But what happens further? If there is no antagonist impulse, if no other ideas or partial excitations arise, and if the dog's aggressive demonstrations produce in me feelings of adequate vividness, these partial excitations pass into complete excitations. I go through the previously-imagined actions. The nascent motor changes become real motor changes, and the adjustment of inner to outer relations is completed."—Vol. i, p. 455.

Such is the account of reason; and it is supposed to be a reasonable account. It is one of the boasts of this philosophy that it dispenses with scholastic doctrine of separate faculties in the soul, and reduces instinct, reason, will, etc., to modifications produced by the single principle of association. We have just

seen how it is done. To reason, is to be dragged off by the strongest of several sets of opposing "nascent motor changes;" and to will, is to suffer similar treatment. To suppose that I have any voice in the matter, that I can compare the claims of the opposing "nascent motor changes" and decide for myself, is an "untenable hypothesis." The nascent motor excitations settle the question among themselves; and thus the "adjustment of inner to outer relations is completed." They settle the question, too, much better than I could; for Mr. Spencer closes his discussion of this topic by saying, "I will only further say, freedom of the will, did it exist, would be at variance with the beneficence recently displayed in the evolution of the correspondence between the organism and its environment. . . . There would be a retardation of that grand progress which is bearing humanity onward to a higher intelligence and a nobler character."

This mechanical way of settling all disputed questions recalls the old problem of the ass and the bundles of hay. If while lying down the nascent motor excitations should happen to balance themselves, one might lie there forever. If they should do this when one is walking, he might go on forever. These disastrous consequences are averted, however, by two circumstances: first, an exact balance of excitations is only infinitesimally probable; and, second, the homogeneous is unstable. If, then, the excita-

tions ever should be in exact balance, the instability of the homogeneous would soon bring about a differentiation of the homogeneous groups of the nascent motor excitations, whereby the inequality of power, resulting from the heterogeneity necessarily produced, would forthwith settle the difficulty in favor of that set of nascent motor changes which would be best calculated to produce an adjustment of inner to outer relations, or to maintain the necessary equilibrium between the organic and its environment. It would, indeed, be far easier to allow the man to start and stop himself, but it would not be half so scientific; and, besides, there would be an interference with "that grand progress which is bearing humanity onward toward a higher intelligence and a nobler character."

How Mr. Spencer would apply this formula to the abstract reasonings of the mathematician, scientist, or philosopher, does not appear. What kind of nascent motor excitation precedes the conclusion that the square on the hypotenuse is equal to the sum of the squares on the other two sides? or that central forces vary inversely as the square of the distance? What nascent motor excitations fight over the nominalistic controversy? What nascent motor excitations discuss the nature of magnetism, and the polarization of light? We cannot hope for an answer to any of these questions from either consciousness or observation; doubtless, however,

Mr. Spencer's prolific imagination is fully equal to the occasion. For the present, we must rest content with knowing that all the abstractions of science and philosophy, and all our voluntary actions, are the necessary resultants of conflicting nascent motor excitations.

A very few words will suffice to show the utter inconsistency of this necessitarian system. Even if it were not emphatically denied by every man's consciousness, even if it were not totally unsupported by a single fact, still this scheme of necessity is utterly self-destructive. Mr. Spencer believes in a universal and ever-active force; where does he get the idea? The veriest tyro in metaphysics now admits that force is not an observed fact, but a mental datum. It is only as we ourselves put forth effort, that a belief in external power arises. Our own effort, our own conscious self-determination, stands for the type of all power. We have no other knowledge nor hint of force than that derived from our own free volitions. If they play us false, all that is built upon them is baseless. Deny internal causation, and external causation disappears along with it, and a universe of unconnected phenomena is all that is left us. Yet Mr. Spencer, after obtaining the belief in external causation from the fact of internal causation, next proceeds to deny the fact on which the belief rests, and asks us still to accept the belief. It is hard to resist this appeal; for if the belief is not accepted,

Mr. Spencer's system has no power to work with ; and if the internal fact is not rejected, the system breaks down. And this is science ; this is logic ; this is evolution. It is hard to believe that Mr. Spencer is really serious. Is it not possible that this work is meant only as an elaborate satire upon the loose reasoning and baseless assumptions of much that calls itself science ? The internal evidence in favor of this view is complete ; while the opposing theory, that it is meant as a sober exposition of fact, is beset with insurmountable difficulties—it is positively incredible. We wait for Mr. Spencer's announcement that all this time he has been perpetrating a tremendous sarcasm. The air of gravity and reality with which the work has been invested, the pains with which it has been elaborated, the wide range of illustration, all will serve to raise it at once to the foremost place in the realm of satirical literature. It is to be hoped, for the sake of his own reputation, that Mr. Spencer will not keep the secret much longer.

Sensational philosophy has never been able to escape nihilism. I have already shown that Mr. Spencer's doctrine of the unknowable can logically result only in idealism ; it remains to show that the logical necessity of the experience-philosophy is nihilism. In its zeal to deny the existence of a knowing power which takes direct cognizance of external being, it has been forced to build up both

the mind and the external world, from the raw material of sensation. There is sensation, according to this doctrine, long before there is knowledge ; and the final recognition of self and of an external world, is the residuum of countless sensations. But if this be so, then the deposit which is named self, has at least as good claim to substantial being as the deposit which represents the outer world. It is logically impossible to accept one and reject the other ; and, in the attempt to do this, materialism has always tumbled into the bottomless pit of nothingness. Mr. Mill makes matter an affection of mind, and mind a product of matter. Both are denied substantial existence, and both go off into the void. Mr. Bain reduces mind to nerve-currents, and then says that nerve-currents and the outer world generally have only a hypothetical existence—indeed, are but “abstract names for our sensations and exist only in the mind that frames them.”* But inasmuch as nerve-currents are abstractions, the mind, which is the product of nerve-currents, is doubly an abstraction ; and substantial existence disappears in the abysses. Mr. Spencer is in the true succession. He makes a desperate attempt, indeed, to save the world ; but in his execution of self, or the *ego*, he handles the ax so awkwardly as to dispatch subject and object together, This is the historical stone which kills the two birds : “Either this *ego*, which is supposed to determine or will the

* “Science and Intellect,” p. 376.

act, is present in consciousness or it is not. If it is not present in consciousness, it is something of which we are unconscious—something, therefore, of whose existence we neither have nor can have any evidence. If it is present in consciousness, then, as it is ever present, it can be at each moment nothing else than the state of consciousness, simple or compound, passing at the moment.”—Vol. i, p. 500.

Whenever Mr. Spencer becomes epigrammatic, he is apt to use arguments which cut both ways. I have always had some secret doubts about the peculiar feats of the Australian boomerang; and have quietly determined if I ever got hold of one, to practice a little with it, before yielding implicit credence to the stories one hears. But here is the clearest proof that boomerang arguments are possible. Let us apply this argument to the existence of the unknowable, and see how it lights on Mr. Spencer's own head. I manage the reasoning in this way: Either this unknowable, which is said to underlie phenomena, is present in consciousness or it is not. If it is not present, then it is something of which we are unconscious—something, therefore, of whose existence we neither have nor can have any evidence. If it is present in consciousness, it clearly cannot be unknowable, for that would involve the contradiction of supposing that a thing can be at the same time known and unknowable. In either case we must conclude that the unknowable is something of whose exist-

ence we neither have nor can have any evidence. My reasoning is as good as Mr. Spencer's. If he insists that we cannot think of phenomena without a substantial support, I reply that it is equally impossible to think of feelings without a substantial support. If the argument is good for one, it is good for both, and that, too, in whichever way it is taken.

But, says Mr. Spencer again and again, this argument of mine reduces to nonsense without the postulate of external existence. Undoubtedly; and it reduces to equal nonsense without the postulate of internal existence. But, he says, the terms used suppose objective existence. They do, indeed; but no more strongly than feeling and thought and consciousness suppose subjective existence. The argument which reduces mind to a string of feelings, reduces matter to a bundle of qualities. If subjective existence has no warrant, objective existence has none also; and the void and formless nothing is all that is left us. But Mr. Spencer calls the "Universal Postulate" to his aid. This is, that we cannot help believing in an outer world, and so must accept it whether we can justify the belief or not. But the "Postulate" is another boomerang. We cannot help believing in an inner world—in the reality and identity of self, and in our self-determining power; and on the authority of the "Postulate," we must, therefore, conclude that this belief stands for a fact. It clearly will not do to be too free with the "Postulate." If it could

be smuggled in at the back door, and be persuaded to affix the seal of reality to the outer world, and could then be kicked out before any further claims could be made upon it, it might do to send for it ; but if it is to be free to all parties, it will be as likely to blaspheme as to bless. There is no help for it. Mr. Spencer's solid-looking sensational ground vanishes from under his feet, and leaves him in the abysses.

The loftiest tumbling, however, of the experience-philosophy has probably been done over the intuitions. All our mental operations proceed upon certain assumptions. All reasoning, even that of the skeptic, necessarily proceeds in logical forms, and assumes the validity of logical laws. The argument brought to overthrow them implicitly assumes them, and owes all its value to the assumption. It were easier to escape from one's shadow, or for a bird to outsoar the supporting air, than for reason to escape from the dominion of logical laws. The law of causation, too, is the necessary postulate of all science, and the one which alone makes science possible. The transcendental philosopher assumes that these data are contributed by the mind itself ; that, though not prior to experience, they do not derive their validity from it, but are intuitively known to be true. It is not taught that these are explicitly present, but only implicitly so, in every mental operation. The savage, the rustic, or the child, probably knows as lit-

tle about intuitions, logical laws, or thought-forms, as he does about the doctrine of evolution itself; yet each one implicitly proceeds upon them.

Now these constant assumptions of all reasoning the transcendentalist calls the intuitions; and claims that they are not generalizations from experience, but are based upon direct mental insight. There must be, indeed, a certain amount of experience to make the terms of the proposition intelligible. If we should inquire of a child three years old whether two straight lines can inclose a space, or whether it is not possible that events can happen without a cause, we should probably get no very satisfactory answer, because the terms of the propositions would be utterly unintelligible to him. But when the terms can be understood, when the conception of straight lines and inclosed spaces can be formed, then the mind needs no further experience to know that two straight lines can never inclose a space. We are just as sure of the fact as we would be if we had followed them to the frontiers of the infinite. When there is sufficient mental development to follow a geometrical demonstration, we reach a certainty which no further experience can confirm or shake. Indeed, we make the mental conception the regulator of experience, and not conversely. So, too, when the doctrine of causation becomes intelligible, that moment it is perceived to be real.

This, then, is the doctrine of the intuitions. The

mind has the power of knowing some things to be true, without any process of verification. These are the intuitions ; and the claim for them is that, as soon as the propositions which express them become intelligible, they are seen to be necessarily and universally true. For their truth, they are independent of experience ; while they alone give to experience any form or meaning. They are the laws which transform the chaos of unconnected experience into a creation of orderly thought. This is the only doctrine which corresponds with our matured consciousness.

This doctrine, however, the experience-philosopher is, of course, bound to deny. These laws of thinking are in his view, like every thing else in the mind, but consolidated sensations ; and, in the lack of evidence, the philosopher plunges into darkness of the unknown, and gropes about for opposing possibilities which can never be brought to a test. Both Mr. Spencer and Mr. Mill assure us that the assumed necessity of these beliefs is only the result of habit. Even the simplest mathematical axioms are, according to Mr. Mill, the results of inveterate associations ; and he gravely suggests that if our training had been different, we might have looked upon their contradictories as equally axiomatic. Mr. Spencer tells us that "where a relation has been perpetually repeated in our experience with absolute uniformity, we are entirely disabled from conceiving the negation of

it." This is the origin of all our *à priori* beliefs. "Being the constant and infinitely-repeated elements of thought, they must become the automatic elements of thought—the elements of thought which it is impossible to get rid of—the 'forms of intuition.'"

Before pointing out the skeptical consequences of this teaching, I notice a novelty which Mr. Spencer has introduced into the discussion. The sensational doctrine, hitherto, has been greatly pressed for time in which to work its transformations. It is not claimed that these wonders have been wrought within the scope of our present consciousness; it has been necessary therefore to do the work in infancy, and to complete it also before the critical faculties make their appearance. It has always required great sleight-of-hand to complete and polish a full set of mental furniture in the limited time allowed. Besides, too, the slightest observation shows that every individual brings with him tendencies which determine both the line, and the measure, of his development; and these tendencies, so far as they go, are transcendental elements in his mental character. The fact is undeniable that, both physically and mentally, we are determined more by our constitution than by our own experience. The fact of transmitted tendencies has become so prominent, that the philosopher who attempts to deduce every thing from individual experience finds the ground slipping from under his feet. The transcendental, forces its way

into individual experience ; and when once it gets in, who can tell where it will stop ?

In this sad strait of the doctrine, Mr. Spencer appears with a saving suggestion, and the eagerness with which it has been adopted serves to show into what sore need the philosophy had fallen. Mr. Spencer suggests that these intuitions are transcendental for the individual, but empirical for the race. He, too, would derive every thing from experience, but from a race-experience. To the experience-hypothesis as commonly understood, he shows no quarter whatever. "If at birth there exists nothing but a passive receptivity of impressions, why is not a horse as educable as a man? Should it be said that language makes the difference, then why do not the cat and the dog, reared in the same household, arrive at equal degrees and kinds of intelligence?" "Those who contend that knowledge results wholly from the experiences of the individual, ignoring as they do the mental development which accompanies the autogenous development of the nervous system, fall into an error as great as if they were to ascribe all bodily growth and structure to exercise, forgetting the innate tendency to assume the adult form. . . . Doubtless, experiences received by the individual furnish the concrete materials for all thought. Doubtless, the organized and semi-organized arrangements existing among the cerebral nerves can give no knowledge until there has been a presentation of the

external relations to which they correspond. And doubtless, the child's daily observations and reasonings aid the formation of those involved nervous connections that are in process of spontaneous evolution, just as its daily gambols aid the development of its limbs. But saying this is quite a different thing from saying that its intelligence is wholly *produced* by its experiences. That is an utterly inadmissible doctrine—a doctrine which makes the presence of a brain meaningless; a doctrine which makes idiotcy unaccountable.”—Vol. i, p. 470.

We have classical authority for believing that it is lawful to be taught even by an enemy; wherefore, we must thank Mr. Spencer for his conclusive showing that the current form of the experience-hypothesis is utterly untenable. And now for his own doctrine: “But these pre-determined internal relations, though independent of the experiences of the individual, are not independent of experiences in general; they have been determined by the experiences of preceding organisms. The corollary here drawn from the general argument is, that the human brain is an organized register of infinitely numerous experiences received during the evolution of life, or rather during the evolution of that series of organisms through which the human organism has been reached. The effects of the most uniform and frequent of these experiences have been successively bequeathed, principal and interest, and have slowly amounted to that

high intelligence which lies latent in the brain of the infant, which the infant in after-life exercises, and perhaps strengthens or further complicates, and which, with minute additions, it bequeaths to future generations."—Vol. i, p. 470.

It is evident that Mr. Spencer has greatly increased the resources of his school by this suggestion. It greatly extends the time, and, besides, gives fine opportunities for logical mountebankery. Viewed through the gloom of the unknown, sleight-of-hand may pass for a real miracle; and acrobatic feats which, upon close examination, betray only the common clown, might, when invested with the haze of distance, seem like the magic movements of a great enchanter. But clear as it is that Mr. Spencer has increased the resources of his school by his suggestion, it is not so clear that he has any logical right to it. For what is it but an admission that unless evolution be assumed as a fact, it cannot possibly be proved? This it is, and nothing more. If the evolutionists can get much comfort out of the admission, they are welcome to it.

Another difficulty meets us. Experience alone, can teach nothing. It is only as there is a mind with an outfit of principles to organize experience, that we can advance a single step. Facts alone, are dead; and can tell us nothing of other facts except we assume the reality of causation, and the validity of logical laws. Otherwise the syllogism begs the ques-

tion, and the induction concludes from particulars to a universal. Argument in either form, is illogical, unless the mind is allowed to contribute its metaphysical data. In this way alone can the dead materials of experience be put in motion, and a living advance be secured. The fabric of knowledge falls into indistinguishable chaos, except as supported by the forms of thought and logic. Whence I submit that, instead of organizing thought-forms from experience, we must postulate thought-forms at the start to give experience any form or meaning.

Another consequence must be noticed. If sensation is the raw material out of which mind has been built up, if it is the only source of knowledge, then whatever is not in sensation has no claim to reality. All the higher powers and beliefs of the mind, which differ in kind from sensation, must be looked upon as impostors who, having forgotten their ignoble birth, set up a claim to the throne. The existence and infinity of space and time, the belief in causation, the axioms of mathematics, and the universal validity of logical processes, these doctrines have no claim to belief whatever. They are not found in sensation, and bear no resemblance to it; and as this is the only legitimate source of knowledge, these pretenders must be banished from the realm of knowledge. If, I repeat, this doctrine be strictly true, we know what we have experienced, and we know absolutely nothing more. Of course, finite experience cannot teach

universal truth, and the so-called intuitions must be reduced to the scale of experience. As a necessary result, science disappears ; and the great doctrine of evolution, which postulates the universal validity of the laws of thought, disappears along with it. Indeed, not even a limited objective validity can be attributed to these laws ; for the doctrine is that they are the result of habit, and derive all their necessity from inveterate association. They represent, then, no external facts, but only internal delusions. In the dissolving chemistry of this doctrine, the subjective world disappears, the objective world also disappears, and all that is left is a limitless void ; nay, not even that is left. All that remains of the universe is a jumble of qualities which are qualities of nothing, and a string of feelings which belong to nobody.

To this fatal inference Mr. Spencer has nought but the following brief reply : " In spite of logical objections we cannot help trusting these intuitions, and this is our highest warrant for belief in any thing." But by his own principles our subjective inability to get rid of these intuitions, is no proof of their objective validity. The inability results entirely from habit. If we had formed other habits we should have thought otherwise. Besides, Mr. Spencer is the last man who should appeal to our necessary beliefs in support of any thing, for no one has done them greater violence. We have already seen how he insists upon the duality of subject and object as the

most fundamental datum of thought, and one which it is impossible for us to transcend ; yet, in spite of the impossibility, Mr. Spencer declares them one. He further insists that no effort will enable us to think of thought and motion as alike ; yet he assumes as a first principle, that they are identical. We inevitably believe that personality is more than a bundle of feelings ; but Mr. Spencer turns this belief out of doors without ceremony. We cannot help thinking that we see things as they are, that the qualities we attribute to them are really in them ; but this belief, too, Mr. Spencer cannot abide. We cannot help thinking that we are free, but this also is a "pseud-idea." There is scarcely a deliverance of our mature consciousness which Mr. Spencer has not insulted and denied. However, something must be saved in the midst of this universal denial, or the universe would vanish in the abyss of nihilism ; and, accordingly, Mr. Spencer asks us to grant him objective existence, and an infinite force, on the sole testimony of the same mind which he has loaded with opprobrium as a false witness. He insists upon these things, because he cannot even start his system without them ; he denies all the rest, because they are hostile to his system. Can any thing be more convenient than this privilege of taking what we like and rejecting what we like ? Who could not build up a system if we would indulge in this little thing ? We cannot grant it, however. The elementary affirma-

tions of the mind must stand or fall together, for no one has any better warrant than the rest. Doubtless, the exigencies of his system may seem sufficient reason to Mr. Spencer for accepting some and rejecting others ; but they will hardly seem so to those whose interest in the great doctrine is less paternal.

Now what shall we say of this theory? Has it not failed at every point indicated in opening the discussion? Even permitting it to ransack imagination for its arguments and its facts, it utterly breaks down. And the purpose of all this subtle misconstruction of our experience, of this labored denial of what we know, of these fanciful guesses at the unknown, is only to escape from the necessity of admitting that, back of nerves and muscles, there is a knowing, self-active mind. To accomplish this purpose, inconceivabilities are postulated, irrationalities are multiplied, consciousness is insulted, and logic is outraged. They have their revenge. Mr. Spencer repudiates reason and consciousness ; and they repudiate Mr. Spencer.

CHAPTER V.

THE THEISTIC ARGUMENT.

THE study of nature has effected, within a few years, a complete change in our conception of the physical universe. Whether we consider it as extended in space and time, or as the subject of law, as a supreme order, it is equally apparent that the earlier view had nothing in common with the conception of to-day. In space, the blue vault and crystal floors have broken up and passed away. We no longer argue, with Lucretius, that the sun cannot possibly be more than a foot in diameter; nor do we now think of the stars as holes in the floor of heaven, through which beams the upper glory. The astronomer has come back from the depths of infinite space, with wondrous stories of the suns that glow and systems that circle there. At his bidding, we have learned to view those twinkling points of light as suns, which, though small through distance, do yet blaze, many of them with the force of thousands of suns like ours. All terrestrial units, of either size or distance, fail to measure the quantities with which he deals. When he attempts to weigh the stars, he rolls the earth into the scales as his pound-weight;

but soon he has to roll in so many, to secure a balance, that imagination is outrun. To measure his **distances**, he first tries the sun's distance, as a unit, but quickly finds it **inapplicable**. **Next he tries the** speed of light, as a unit, and measures distances by the time light spends in crossing them; but this, too, soon leaves imagination dizzy and powerless. The rays which reached our earth last night from the pole-star, started forty-six years ago. Rays which started from more distant orbs, when the Roman empire was young, or when Leonidas and his Spartans were making history, are still upon their way. Since light left some of the outlying pickets of the celestial host, the entire drama of human history has been enacted. Civilizations have come and gone. Empires have risen and decayed. Homer has sung, Plato has speculated, and Socrates has nobly died. But the light which left its distant home when human history was still far down the future, has not yet accomplished half its way. The sphere of telescopic vision has a diameter of seven millions of years as the light flies; and could the heavens above us be blotted out to-night, we should continue to receive light for thousands of years to come. Swift-footed as the messenger is, earth would grow old and gray before it learned the occurrence of the catastrophe. Such are some of the facts by which the astronomer seeks to illustrate the extent of the universe in space and time.

If from astronomy we turn to geology, we learn the same lesson. The idea of a creation instantaneously perfected is fading from the minds of men ; much more the thought that it took place but six thousand years ago. Earth is written all over with the marks of a more ancient birth. The very paving-stones beneath our feet have in them the rustle of ancient woods and the wash of primeval seas. The slow, cyclic changes which have fitted up our earth for human habitation, demand years by the million for every day of creation's week, and give a mushroom air to the oldest human monuments. We cannot, indeed, assume nature's flowing differential to be exactly constant ; yet, when all allowance has been made for its variation, it is still beyond question that the integrated function cannot be expressed in years.

Still more clearly is this seen if we listen again to the astronomer as he tells of a time when our earth itself, with its granite pillars and everlasting hills, was but a morning-mist of creation, which spun and wove until the pattern of creation stood complete. And hence creation is coming to be viewed as an evolving rather than an event ; as a process demanding the roll of indefinite years ; as being, what the Bible calls it, a *genesis*, that is, a birth, with the necessarily accompanying ideas of long time, and deferred perfection. The conception of sudden bursts of creative power from without, is

changing for the conception of an orderly and constant development from within. Yet this stupendous chronometry of geology and astronomy reveals no trace of a lonely God. Though we go back until the sky comes down to the hills, and imagination will go no further, we find nature's forces toiling as busily as now.

But still more astonishing than its vast extent and indefinite duration, is the profound order which the universe displays. The disorderly mob of appearances, which formed the content of the earlier conception, has disclosed its uniformities, and the wonder grows every day. The whole drove of invisibles which filled the early imagination, and engineered the machinery of nature, has been relieved from further duty; and their places have been assumed by the steady laws—laws whose control the atom cannot escape, and the system cannot defy. The belief in an unbroken chain of cause and effect throughout all nature, is growing constantly; and science is disclosing as never before the continuity of nature, from the lowest to the highest forms. Many breaks in the chain have been insisted upon, but one by one these are filling up, and grassing over. And such hold has this fact of order and continuity taken upon the scientific imagination, that very many scientists profess themselves unable to think that it ever has been broken, and others will not so much as listen to a doctrine which involves the supernatural. What-

ever seems chaotic has a hidden order ; whatever seems discordant has a secret harmony. Wait a little, and both the order and harmony will be disclosed.

But, while the effect of scientific study has been to magnify the extent and wonder of creation, it has also served to weaken faith in the existence of a Creator. Never was nature so harmonious to the conception of a superintending mind ; and, perhaps, the absence of that mind was never more suspected. Never was the universe so fit to be a manifestation of the eternal all-wise God as it is to-day ; and, from a scientific stand-point, never was faith more weak. A study of the Creator's methods has awakened doubts of his existence ; and the discovery that the work is infinitely more wonderful than we had been taught to believe, warrants the conclusion that there is no worker. It would seem, at first sight, as if theism ought to find its strongest advocates among the students of science ; but it is a fact that, from the time of Anaxagoras, scientific study has had a tendency to embarrass belief. Atheism might seem excusable in the student of history or social science ; for to him, as to Macbeth, life must often seem

“ A tale

Told by an idiot, full of sound and fury,
Signifying nothing.”

But atheism begins not with him. Indeed, belief and trust are generally strongest among those best acquainted with the despair-provoking facts of his-

tory. It is the student of science, the man best acquainted with nature's calm uniformity, with its stupendous powers, and the ineffable perfection of its mechanism ; it is this man who, though surrounded by the choicest tokens of a Divine wisdom, first learns to suspect the absence of the Eternal Mind.

It must be, then, that science has made some new discovery which renders less imperative the need of a guiding intelligence. If the argument from the universe to God were ever true, it must be truer now than ever. If the narrow heavens upon which the Psalmist looked out, declared the glory of God, much more must the boundless cosmos of to-day. But since the heavens, to use the words of Comte, no longer declare the glory of God, but the glory of Newton, La Place, and Lagrange, we must conclude that the theistic argument was never true ; and that science has found, in a deeper knowledge of matter and force, a complete explanation of the universe. The question, then, which I wish to discuss is, whether there is any thing in the established theories and observed facts of science to warrant this wide-spread skepticism ; or whether this revived atheism, so far as it is not the child of desire, is not due to an incomplete analysis of scientific teaching, and to confused and contradictory notions of force and causation. Science, of course, abhors metaphysics ; but I suspect we shall find some bad metaphysics at the bottom of the atheistic argument.

In opening the argument let us get the case clearly before us. It is universally admitted that nature *seems* to be the work of intelligence. Inductive science in general proceeds implicitly upon the postulate that the reasonable and the natural are one ; and without the assumption of this identity, science would be impossible. No scientific man ever dreams of proposing a system or hypothesis which is clearly seen to be unreasonable ; and of two hypotheses we cannot help preferring the most simple, direct, and rational. Who could accept the cumbrous Ptolemaic system, after the simpler and more rational one of Newton had been discovered? Even if the former were so aided by cycle and epicycle as to account for all the motions of the planets, it could not be held in the presence of its simpler rival. The detection of any theory as cumbrous and needlessly indirect, seals its doom. When we make such a discovery, we do not, like the Spanish astronomer, think that we could have given good advice if we had been consulted at creation ; but we do begin to abandon the theory.

And yet, why abandon it? Why should nature be symmetrical and harmonious to our reason? Why should the methods of nature be also the methods of thought? Why should not nature be the unreasonable and discordant? Why should we take our feeling of fitness, of simplicity, of harmony, as a standard by which to judge the external world? It

is clear that if we cannot do so, science becomes impossible ; but why should not science be impossible ? It is plainly an implicit postulate of all induction that the natural and the rational are one. Nature presents us with no laws, but only with disconnected individuals. The intellect is the crucible in which the many are fused into one. The order of nature is a thought-order, which was first born in the mind as an hypothesis, and afterward verified by experiment and observation. And this agreement of the order of our thought with the procedure of external nature is utterly unintelligible, unless nature is informed with a reason other than ours.

Again, it is admitted that nature cannot be explained, or even described, without assuming the presence of purpose therein. Even in the inorganic world, we find a multitude of adaptations which, upon the assumption of purpose, become luminous and intelligible, but which are totally unaccounted for upon any other supposition. Without the law of chemical equivalence and proportion, nature would be an irredeemable chaos. With it, through all the myriad changes which force is constantly working, the same chemical compounds remain. If they are resolved into their elements, they return to the original combination, instead of forming new and strange compounds. The operation of this law moved Faraday to profound admiration. He says : " There are different elements with the most manifold powers

and the most opposed tendencies. Some are so lazy and inert, that a superficial observer would take them for nothing in the grand resultant of powers ; and others, on the contrary, possess such violent properties that they seem to threaten the stability of the universe. But upon a deeper examination of the same, and a consideration of the role which they play, one finds that they agree with one another in a great scheme of harmonic adaptation. The power of no single element could be changed without at once destroying the harmonious balance, and plunging the world into ruin." Except this law had been imposed upon matter chaos must have remained chaos forever. If we look upon it as the result of purpose, the mind rests satisfied ; if we do not, there is no answer except the positivistic utterance : The law exists, and that is all we can know about it.

The relation of the soil to plant-life, and mediately to animal-life, is another fact which becomes intelligible upon the assumption of purpose in nature, but is utterly incomprehensible without it. Of this relation Liebig says :

" There is in chemistry no more wonderful appearance, none which more confounds all human wisdom, than that shown in the adaptation of the soil to plant-growth. Through the simplest experiments every one can convince himself that, in filtering rain-water through soil, it dissolves no trace of potash, ammonia, silicic acid, phosphoric acid, as it otherwise does ;

and that, much more, the earth gives no part of the plant-food which it contains to the water. The most continuous rain is unable, except by mechanical washing, to deprive it of any of the chief conditions of its fertility. And the soil not only holds fast what it possesses, but if rain, or other water which holds ammonia, potash, phosphoric, and silicic acid in solution, is mixed with earth, they are almost instantly taken up by it. And only such materials are entirely withdrawn from the water as are indispensable to plant-nutrition; the others are entirely, or for the most part, unaffected." *

Here is another law, and one scarcely less wide-reaching than that of chemical equivalence. If we suppose it to be the result of purpose, if we suppose it to have been imposed upon matter that plants and animals might live, the mind is satisfied. A sufficient reason for the fact has been found, and a sufficient explanation has been given. But if we reject this explanation, as in the case of the chemical law, no account whatever of the fact is possible; and we must fall back once more on positivism, and content ourselves with the affirmation of the fact, and attempt no explanation.

The peculiar action of heat with relation to transparent media is another fact of even greater importance than the one just mentioned. Heat of high tension has vastly greater penetrative power than

* Chem., Brief, vol. ii, p. 261.

heat of low tension. The result is, that the heat from the sun passes with little obstruction through our atmosphere, and delivers its warmth upon the earth. But in so doing it loses tension, and is entirely unable to pass through atmosphere into space again. The air lets it in, but will not let it out. Upon this fact alone rests the possibility of maintaining the temperature which organic needs make imperative. The fact is explained if we consider it as the result of purpose; otherwise, it remains unexplained and unexplainable. The same general adaptation is also seen in the reciprocal action of the plant and animal kingdoms, and in the relation of the sea and land. Physical geography proves that a slight change in the mutual adjustment of land and water, would be sufficient to destroy the present harmony of the organic world. Passing to organic existence, the evidences of plan and purpose accumulate so rapidly, and are so strong withal, that the most skeptical as to final causes cannot avoid using the language of contrivance. Scientific men assume it as an axiom that every organ has its purpose and balanced function; and whole sciences, as comparative anatomy, are built upon the assumption. Cuvier finds a bone, and reasoning upon the principle of adaptation and fitness, proceeds to construct the animal to which it belonged. Finally the complete skeleton itself is found, and the prophecy of the philosopher accords with the fact of nature.

Perhaps no one has used the language of contrivance more freely than Mr. Darwin himself. He denies the fact, to be sure ; but he cannot avoid using the language.

Mr. Huxley, too, in speaking of the development of a salamander from the egg, says : " After watching the process, hour by hour, one is almost involuntarily possessed by the notion that some more subtle aid to vision than an achromatic would show the hidden artist, with his plan before him, striving with skillful manipulation to perfect his work." At every unguarded minute, the most cautious and skeptical naturalists fall into the very error they so vigorously denounce.

Let us now collect the results at which we have arrived. It is admitted by all—it is not even questioned by any—that nature is more harmonious to the conception of a guiding mind than to any other scientific view. It is admitted, too, that the evidence of purpose is so strong that not even the most skeptical can avoid assuming it ; and if he is to speak intelligibly about nature, he must assume it. It is also admitted that science, even while denying that nature is the work of reason, must still assume as a necessary postulate that nature is reasonable, that its methods correspond to those of a rational mind. It is further admitted, that no explanation at all is possible of many most purpose-like laws and facts of nature, except upon the assumption that they do indeed repre-

sent the fulfillment of a plan or purpose. In short, it is admitted that, assuming contrivance and purpose in nature, the universe becomes luminous and harmonious ; and, denying it, the universe remains an incomprehensible enigma. It is plain, then, that as a scientific hypothesis the theistic conception has infinitely the advantage over all others. The universal scientific method is to adopt that theory which best explains the facts. The vibratory theory of light and heat explains more phenomena than the emission theory, and owes its acceptance entirely to this fact. If any other theory should ever be proposed which would better explain the facts, it would in turn be received.

Now, in offering the hypothesis of intelligent Creator as the explanation of the universe, we are not proposing any strange theory. We are only extending to the working of the world, the law which we know holds in our own conscious actions ; and there is nothing whatever in such a conception which is at variance with just scientific methods. If, now, we apply the accustomed reasoning of science to this question, the decision is sure. The hypothesis of a living God is admitted by every one to be all-sufficient to explain the universe, while all others are allowed to be full of breaks which, in the present state of science, are simply impassable. If, then, we are to reason scientifically, we must accept the theistic doctrine. To appeal from it on the

authority of possible future discoveries, is to adopt a principle of reasoning which would make all scientific truth impossible. If a disciple of the Ptolemaic astronomy should object against the Copernican system: It is, indeed, much simpler and more rational than my own; it gives a far more comprehensive explanation of the facts than mine does; I admit all that. I admit, too, that my system gives no account at all of very many most important facts; yet I am not going to give it up. You cannot tell what may be found out yet. You cannot show that cycle and epicycle may not be so combined that my system shall give a complete account of the observed facts; and until you can prove this, I shall not change my faith.

If one should talk in this fashion we should dismiss him as an idiot; and yet it is hard to see in what respect his reasoning would differ from that of those scientific men who maintain their limping, atheistic doctrine, solely upon the authority of what they expect to discover at some unknown time. But men do this. It is, indeed, true that nature's harmony outruns our highest reason; but it is equally true that this harmony is the product of no reason. There must be some weighty scientific facts which warrant such a conclusion; what they are, we have now to inquire.

The fact of law, by a most remarkable confusion of thought, is offered by some scientists as a suffi-

cient explanation of the universe. I had supposed that this transparent delusion had long since ceased to deceive any one ; but having recently met with some wretched conjuring with it in the interests of atheism, I must ask the reader's indulgence, and venture another explanation of this trite term. What, now, is a scientific law ?

Without waiting to explain the method of discovery, it is admitted by every one that the laws of strictly inductive science are but generalizations from observed facts ; and that even when correct, they express nothing but orders of co-existence and succession. Such a law is nothing but a summation of the inductions, and gives no new knowledge. It is only an epitome, a short-hand expression, of the observed facts. But if this is the gist of the scientific idea of law, it is needless to point out how incapable law is of explaining any thing. For, suppose our statement of the law correct, which it seldom is ; suppose the whole universe arranged in lines of co-existence and succession ; then, when science had done its work, nothing would be explained. It is a matter for the deepest wonder that any one should have ever been deluded by this empty gabble about "creation by law," "result of law," etc. The tendency of the human mind to personify its abstractions is indeed remarkable ; but the whole history of metaphysics cannot furnish a more striking example of it than this illustration

given by "exact science." The schoolmen have furnished many a frightful example of this metaphysical tendency, wherewith to point a scientific moral or adorn a scientific tale. But so long as scientists hold up this most inane conception as the explanation of the world, they have little right to rail at any set of opinions under heaven. The laws of nature are the methods of nature, and are the very things to be explained. Why does nature move along lines of order? why not along lines of confusion and chaos? The latter are infinite, the former are few. How does it happen that the former are chosen and the latter avoided? It is greatly to be desired that such reasoners would remember that law is method, not cause. Surely when one begins to offer the very fact to be explained as its sufficient explanation, he would not be very far wrong if he should begin to suspect that his mind is not adapted to logical investigation. He had better turn his attention to poetry, and leave the cramping rigors of logic to others.

The logical and scientific value of atheism depends upon the atomic theory and two assumed facts. Science conceives matter as composed of ultimate atoms which are endowed with certain powers of attraction and repulsion. Now these ultimate atoms bear no trace of origination, and, in default of proof that they have been created, we may assume them to be eternal. We have, then, in this conception, first, substantial being; and, second, inherent power;

and in looking for the reason of things we must not go beyond this until it becomes plainly incompetent to explain the facts. Causes must not be multiplied beyond necessity; and until it can be shown that the forces actually at work in the world do not suffice for its explanation, we must decline to postulate any additional causes. If the various manifestations of the world can be explained by referring them to the mutual attractions and repulsions of these atoms, then not only is there no need to postulate any more causes, but we cannot logically do so.

With this theory as a starting-point, the atheist next proceeds to show that these atoms are capable of doing the work of intelligence. To accomplish this, he brings forward the nebular hypothesis to show how gravitation and inertia are capable of building up a solar system, which bears many marks of design; and for the seeming adaptation of organic forms, he offers the Darwinian theory. By means of these two theories, which he assumes to be established beyond question, he claims to have deprived the argument from design of a great part of its force, and to have made it extremely probable that a deeper knowledge would destroy it altogether.

We shall see the force of the argument more clearly if we examine the nebular theory. When it was believed that the members of the solar system were formed as they now exist, and placed in their orbits by Divine power, natural theologians saw

evidence of purpose and wisdom in the relative arrangement of the parts. The existence of the sun in the center of the system ; the small eccentricity of the planets' orbits, whereby any great variation of light and heat is avoided ; the exact balance of central and tangential forces, by which the planets are kept in their orbits—all these things told of an adapting intelligence. On our own planet they found marks of mind, in the alternation of the seasons, and of day and night. The relative adjustment of land and water, and a thousand other things, told the same story of a superintending mind.

But the nebular theory claims to explain all the phenomena by simple mechanical laws, and without the intervention of intelligence. It assumes only that its atoms were once widely diffused in space, and from this assumption it mathematically deduces the whole solar system. The nebulous matter began to condense by virtue of attraction, and the chances were infinite that it would not contract accurately on its center, which must produce revolution. This revolution called into play the inertia of matter, and thus produced a centrifugal force. By further condensation the rate of revolution was necessarily increased, as can be mathematically demonstrated, and the centrifugal force increased also. Finally, at the orbit of Neptune, over the equator of the revolving mass, the centrifugal force became equal to the attraction, and, upon further contraction, a ring of

matter was left behind. Now, unless this ring was absolutely homogeneous and equally exposed to external influences, it must contract unequally, and the result would be a disruption of the ring into fragments, which would at once assume the globular form. These smaller planets, unless they were of the same size and were symmetrically disposed throughout the orbit, must collect into one—the planet Neptune. Formed in this way, the planets would necessarily have orbits of small eccentricity—the first mark of design. Owing to the greater velocity of the outer part of the ring over the inner part, the planets would all revolve upon their axes, which would produce day and night—the second mark of design. The shock at collecting into one mass would almost inevitably shift the plane of the orbit, which would produce seasons—the third mark of design. The sun, too, would be in the center of the system—the fourth mark of design.

Again, in condensation, heat would be produced. This would call into action magnetic, electric, and chemical forces; and these by their interactions would finally bring the earth to its present form and condition. It is claimed, for these reasons, that the present condition of the solar system, together with all those prominent aspects which once seemed the work of purpose, are an exact though undetermined function of gravitation and inertia. How, then, can they be expressive of intelligence? What need is

there to postulate intelligence to account for them? Gravitation and inertia give an exhaustive explanation of the facts; why seek further? We may shrink from the conclusion, but the reason is satisfied. A physical explanation of the facts is found, and honor binds us to accept it.

Here, then, in a most conspicuous case, matter seems to be doing the work of mind; and the radical scientific position is that, if our faculties were more acute and our analysis more subtle, we could explain the most complex organization in the same way; that we could begin with the simplest properties of matter, and mount by an unbroken chain of cause and effect to the highest forms of life. Already molecular mechanics are claiming control of chemistry, chemistry is pushing its frontiers over into physiology, and physiology is heir prospective to the mental and moral sciences. The nebular theory has made it plain that the solar system can be built up without intelligence; and Darwinism has shown that the most complex and artificial forms can be developed from forms so rude and simple that no trouble need be taken to account for them. Upon the strength of these facts it is claimed that teleology has received its death-blow. Matter and its inherent forces already explain much, and are daily explaining more. Besides, since the origination of matter cannot be proved, every fact ranged under a physical law is so much wrested from the government of God. The goal is evident. Nat-

ural laws are able to administer themselves. God is only a provisional hypothesis to explain outstanding facts, and is sure to be displaced by advancing knowledge.

Here is the real root of the inveterate quarrel between science and religion ; here is the fundamental cause of the strange fact, before noticed, that scientific study has always tended to embarrass belief. It is the thought, that whatever is the product of physical necessity cannot at the same time be expressive of purpose ; that the realms of nature, and of God, are mutually exclusive. This has been the claim of science, and the admission of religion. No wonder, then, that religion, prompted by an unerring instinct, has always looked with suspicion upon all attempts to formulate nature. Not that order is incompatible with will—for the theist has always held that with Him is no variableness, neither shadow of turning—but because this necessary working of matter seems to exclude both the action, and the need, of intelligence. Upon this assumption, science at once puts on a fixed and fate-like aspect, before which every high faith silently withers, and every high emotion cries out in mortal anguish. Having made nature over to science, religion has been forced to look for God outside of nature ; and, as the proofs of ancient birth have accumulated, God has been driven farther and farther away. Hence the pertinacity with which theists have sought for breaks in the physical chain ; and hence it is that, as

chasm after chasm has filled up, they have felt as if the ground were slipping from under their feet, and the end of physical inquiry must be to elevate matter to the throne of God. But I must confess that I feel rather suspicious of an argument for the Divine existence which is based upon nature's disorder and breaks, rather than upon its order and continuity. For if the disorder should ever be reduced, and the breaks mended, which is not at all unlikely, what then would become of the conclusion ?

I believe that I have here represented the atheistic argument fairly. The claim is that a cloud of atoms endowed with definite spheres of attraction and repulsion is able to work out all the results which seem to us to manifest intelligence and purpose. As specimens of atomic working, they exhibit the solar system and organic development. Teleology is driven out of astronomy and biology, and surely it requires little faith to believe that advancing knowledge will displace it altogether. Mr. Spencer says that the atoms and atomic forces are all he needs to build up the universe, and claims to have shown " that this transformation of an indefinite, incoherent homogeneity into a definite, coherent heterogeneity, which goes on every-where until it brings about a reverse transformation, is consequent upon certain simple laws of force.

" Given these universal modes of action which are from moment to moment illustrated in the common-

est changes about us, and it follows that there cannot but result the observed metamorphosis of an indeterminate uniformity into a determinate multiformity." We have seen some specimens, however, of his argument, and need not vex ourselves with its weakness and debility any further.

Now I have no purpose of running a muck against the nebular hypothesis, or of blaspheming the atomic theory; but I think it can be easily shown that even admitting both as facts of nature, they necessarily postulate an extra-material power to account for their action.

Let us place ourselves in thought back in the nebulous period and see what will happen. The atoms with their attractive and repulsive forces are sown through space, constituting a gas almost infinitely rarer than the most perfect vacuum we can produce with an air-pump. Out of this void and formless gas, the entire physical universe has been built up. I say the entire physical universe, because if this theory leaves any thing unexplained, the teleological difficulties which it seeks to escape all come back in full force. It will hardly be claimed that this gas extended through infinite space; and, if the claim were made, it would paralyze the theory. For in that case no centers of attraction could be set up, and all parts being equally drawn in all directions no motion could result. The atoms would be powerless to initiate motion until some external force upset the equilibrium and set

up centers of attraction. The original nebula, however, is supposed to be finite in extent ; let us see what will happen on this supposition. It is assumed that it will contract ; but why should it not expand ? Gases, so far as we know them, tend to indefinite expansion. If this gas follow the law of gases in general, we should expect it to expand instead of contracting. It must do so, indeed, unless the repulsive force of the gas is satisfied, in which case it will neither expand nor contract, but remain in equilibrium. The only possible result of such a warfare of attractive and repulsive forces must be a lifeless balance. There is no more reason why such a gas should condense than there is for the condensation of the atmosphere, or of the light-bearing ether. If such a gas does contract, it can only be because there is another power than attraction and repulsion constantly at work to overturn the balance into which they constantly tend to fall. If the astronomer will not admit a power outside of the atoms, he must be content to see his theory perish.

And even supposing contraction to be possible without the mediation of an external power, it is difficult to see how the revolving mass can throw off rings in the manner assumed. If an external power revolves a body, the centrifugal force can be so increased as to overcome the cohesion. In this way water is thrown from the rim of a wheel, and grindstones often burst. Professor Doremus a few years

ago exhibited an experiment illustrating the way in which rings were formed in the evolution of the solar system. In all these cases, however, the revolving power was external to the mass ; but in the assumed evolution of the planets, the revolving force was internal. The cause of the revolution was the contraction of the mass, and hence the cause of the centrifugal force was also the attraction of the mass. Hence, as the centrifugal force increased the attraction increased ; and no reason can be given why one should overbalance the other. It follows, then, that they must remain in constant balance, and a ring could never be detached unless an external power be supposed which overturns the equilibrium. Here, again, the astronomer is forced to suppose some power beyond the attractions and repulsions of his atoms.

Indeed, no aggregate of atoms whatever can exist as a resisting body, by means of simple attractions and repulsions. For both being central forces, it is demonstrable that both must vary inversely as the square of the distance. It follows, then, that the atoms of a body are in equilibrium at all possible distances, and can offer no resistance to change of form. If you halve the distance you double both attraction and repulsion. If you double the distance, you halve both attraction and repulsion. It is clear, then, that the atoms can offer no resistance whatever to change of form, because at all distances the existing forces are in equilibrium. Mr. Spencer notices

this fact, and concludes that we don't know any thing about it. The true conclusion is, that body under simple attractions and repulsions is impossible. A co-ordinating force outside of the atoms, must be assumed as the possibility of a resisting mass.

But we have further difficulties with this cloud of atoms which claims to be independent. When we reach a clear understanding of the conception, it seems to involve positive contradictions. We are distinctly taught that no atom can move itself—it moves only as it is moved. This is the law of inertia—a law, too, which is at least as well established as any in all science. In order, then, to conceive of these atoms as independent workers, we must conceive of a series of dependent motions which at the same time depends on nothing. The motion of each atom depends entirely upon the motion of an antecedent atom ; and unless we can conceive that a thing should be at the same time dependent and independent, conditioned and unconditioned, we cannot admit the independence of atomic working.

But cannot the totality of the atoms be independent, though the individual atoms be conditioned? This involves the same contradiction ; and is, besides, in hopeless opposition to the doctrine of the equivalence of forces. Working force is constantly falling into equilibrium, and is lost to the *dunamis* of the universe ; hence the totality of atoms could only come to a stand-still from which they could never emerge.

If, then, we grant that the atoms, when once in motion, can work the machinery of the world, we cannot grant the sufficiency of the materialistic explanation until we learn what set them in motion. That first motion, that initial action, can only be viewed as self-determined, and hence extra-material. Self-motion there must be. To put it in the atom, removes the atom from the category of matter and denies the law of inertia. To put it outside of the atom admits the insufficiency of the atomic explanation. All mechanical motion implies the self-moved, and thought cannot stop short of affirming self-motion as the explanation of all physical activity. Science can choose between positivism and theism ; its atheistic conjurings must cease. Once upon the metaphysical road, there is no stopping at the half-way house of atheism. "Atheists must be viewed as the most inconsequent of theologians."

But difficulties thicken as we advance. We cannot even grant that the atoms can take care of themselves after they have been set in motion. I have already pointed out that mere attraction and repulsion can only result in a dead balance, but a still greater difficulty meets us upon nearer examination. The doctrine assumes that no atoms are in contact, but are separated by void spaces. It is forced to this assumption by the facts of expansion and contraction, and also in order to make the conception of motion possible. Let us, then, picture one of these

atoms as it exists, cut off by an absolute void from all its neighbors. What can it do? What influence can it exert upon any other? Can matter act where it is not? across an absolute void? without any medium whatever? Are these possible conceptions? Can a theory which involves such doctrines as these assume to be rational? To escape this difficulty, some scientists have postulated an ether which penetrates the interatomic spaces and serves as the medium of communication. But, if that ether is immaterial, this conception is an abandonment of the atomic theory as a sufficient explanation. If on the other hand it is material, the difficulty returns when we inquire into its constitution. It in turn is conceived as formed of atoms, and these atoms are either in contact or not. If in contact we have a *plenum*, and motion is impossible. If not in contact we have the difficulty of action across a void, and where the actor itself is not. But these are impossible and contradictory conceptions. For it is plain that the cause must be where the effect is—the force and its working cannot be conceived as separated. If, then, the effect of this solitary atom is produced over yonder, the power, the force of the atom must be over yonder also; and the matter of the atom, and its forces, are divorced by an absolute void. But it is one of the axioms of science, one too of which we hear a great deal, that no force can exist apart from substance. But if such a conception of atomic work-

ing does not imply a separate existence, it would be hard to say what does. Clearly the force is entirely separate from the atom and independent of it, when it wanders off in this fashion. Besides, since force can exist separately, the atom itself has no further function, it is only postulated as the base of the forces; and since it is useless for this purpose, it may be allowed to drop out of existence. But as force cannot exist apart from substance, so the scientists say, and since these forces are independent of the substance of the atom, we must look for some other foundation for the working powers of nature. The scientists may solve these contradictions at their leisure. It would not be difficult to criticise the atomic conception in general; but, however just that conception may be, it is sure that this doctrine of atomic action is contradictory and self-destructive. I allow the scientist to look upon his atoms as centers of attractive and repulsive forces; and I then affirm, plainly and distinctly, that these powers are powerless without an extra-atomic power. I affirm that all the working forces of nature, from the attraction of gravitation down through light, heat, electricity, magnetism, chemical affinity, cohesion, and adhesion, are utterly helpless without the existence of an overruling, immaterial force by which the scattered atoms are co-ordinated and controlled, and by which the atomic forces are enabled to work their appropriate effects. I say, then, not only that atoms

are unable to construct a solar system without the aid of an immaterial power, not only that they cannot keep out of a dead balance of attraction and repulsion without an immaterial power; but I say firmly that they cannot do any thing at all, cannot effect even the slightest motion, without the working of an immaterial power.

To the atheistic objection, that we must not postulate any supernatural cause until we have found out all that natural causes can accomplish, I answer, that natural causes, as such, can do nothing; instead of being competent to an indefinite amount of work, they are competent to nothing whatever. I say, then, science, as well as religion, postulates as its sole possibility, the existence of a spiritual, universal, ever-active power; and, by consequence, a spiritual, universal, ever-active Being. To the objection (weighty only from its senselessness) that this is metaphysics, I answer, that it is metaphysics from which there is no escape. Science must either adopt positivism, and give up all attempt at explanation, or it must accept this conclusion. If we are to think at all on this subject, and think rationally, we can reach no other. Positivism or theism; there is no middle ground. The atheistic argument is the exact parallel of the renowned snake which began at his tail and swallowed himself, leaving zero as the result of the process. The atomic theory serves well enough as the elephant which up-

holds the world, but is in equal need of support itself. If our faith is sufficiently robust to conceive the atoms as standing alone, we may as well dispense with both elephant and tortoise and poise the world on nothing.

The administration of things being taken out of the atoms' hands, we are prepared to listen with greater equanimity to the claim that Mr. Darwin has demonstrated, that purpose is needless to explain the complexity of organic existence. We have seen how the nebular theory failed in its attempt to be independent; we have now to inquire whether this claim has any greater weight of evidence.

Considered as a theory, no one will claim that Darwinism is established. Very many, and at present unanswerable, objections stand out against it; and it is beginning to be apparent that the doctrine, if true, can only be true in a greatly modified form. But granting the truth of the theory, the claim that it removes the need of a guiding intelligence from the development of organic nature is a most curious logical inconsequence. There is not much agreement among the disciples of the development theory, and hence it is difficult to say what the precise teaching is. Lotze, a most able expounder of the doctrine, declares that the theory cannot be worked out unless we assume in the original nebula the seeds of all that afterward appear. Even the seeds of life and mind must be scattered there to make the

development possible. Mr. Darwin's strange theory of pan-genesis, which makes the original germ not only the parent, but the actual possessor of endless germs which are afterward to be developed, implies the same assumption. Now surely a view which explains evolution by a previous involution, without giving any account of that involution, does not throw any very brilliant light upon the cause of organic development. Such a doctrine merely removes the question one step further back, and, so far from explaining nature, rather increases the mystery.

Whether the doctrine implies a necessary progress of organic forms is also a question. Some teach that development is necessarily upward, and others will hear nothing of such a doctrine. The naturalists may be left to settle this question among themselves; but whichever alternative is adopted the denial of purpose is in no way warranted. If this development is necessarily upward, the only rational explanation would be that such upward movement is due to the fact that a supreme intelligence is realizing in such development his own pre-determined plan and purpose. Mechanism knows nothing of higher and lower; and when the blind forces of nature (if there be such) are seen holding on an upward course for untold millions of years, ever climbing to higher forms and giving birth to growing harmony and adaptation, the only supposition which at all accounts for the fact is that there is a controlling pur-

pose at work which guides these powers to a foreseen goal. No mechanical necessity whatever can be shown for the steady progress; and as science increases the time during which the toiling forces have been faithful to what can only be described as a plan, the mechanical explanation becomes so incredible that it can only be accepted by one who is determined to believe whatever suits himself, in defiance of all probability and all fact. Let Darwinism be true; if it holds a doctrine of progressive development, it makes a sorry figure in attempting to deny a controlling purpose.

More commonly, however, the theory is held to imply no such necessity. Mr. Darwin himself, I think, will not accept progressive development as an integral part of his theory. At all events, those who hold it atheistically, expressly repudiate such teaching. With them the primitive organism is looked upon as a variable which develops in all directions, and those forms live which can live. The principle of natural selection, or the survival of the fittest, cuts off all unadapted forms, leaving the others to survive, and propagate their own peculiarities. Keep up this sifting process through indefinite time, and it must be a weak imagination which would be unable to conceive that the forms of life must become indefinitely various, while their continuous existence would imply an adaptation to their circumstances. This principle of natural selection, too, would constantly tend

to make this adaptation more complete. As the result of such a process we should finally have a world stocked with the most complex living forms, all displaying a most accurate adaptation to their condition, and yet this adaptation would be entirely unexpressive of purpose. In such case, we should be compelled to turn the teleologist's argument around and say, not that organisms are adapted to their surroundings in order that they may live, but that they live because they are adapted to their surroundings. Mr. Huxley illustrates the argument as follows :

“ That which struck the present writer most forcibly on his first perusal of the ‘ *Origin of Species* ’ was the conviction that teleology, as commonly understood, had received its death-blow, for the teleological argument runs thus : An organ or organism (A) is precisely fitted to perform a function or purpose (B) ; therefore it was specially constructed to perform that function. In Paley’s famous illustration, the adaptation of all the parts of the watch to the function, or purpose, of showing the time, is held to be the evidence that the watch was specially contrived to that end, on the ground that the only cause we know of competent to produce such an effect as a watch which shall keep time, is a contriving intelligence adapting the means directly to that end.

“ Suppose, however, that any one had been able to show that the watch had not been made directly by any person, but that it was the result of the modifi-

cation of another watch which kept time but poorly, and that this again had proceeded from a structure which could hardly be called a watch at all, seeing that it had no figures on the dial and the hands were rudimentary ; and that going back and back, in time we came at last to a revolving barrel as the earliest traceable rudiment of the whole fabric ; and imagine that it had been possible to show that all these changes had resulted, first, from a tendency of the structure to vary indefinitely ; and secondly, from something in the surrounding world which helped all variations in the direction of an accurate time-keeper, and checked all those in other directions ; then it is obvious that the force of Paley's argument would be gone, for it would be demonstrated that an apparatus thoroughly well adapted to a particular purpose might be the result of a method of trial and error worked by unintelligent agents, as well as of the direct application of the means appropriate to that end by an intelligent agent."*

I am not aware that Paley's argument necessitates any peculiar conception of the method of organic creation. No natural theologian pretends to any conception of the mode of the Divine working. He only insists that when we find a result which is replete with relations and adaptations which are unintelligible without the conception of purpose, we must conclude that it is the work of purpose. With this

* "Lay Sermons," p. 301.

fact in mind, consider Mr. Huxley's illustration. It, of course, leaves the rudimentary watch unexplained, and also all those purpose-like arrangements in nature which make the watch possible. The "method of trial and error" is worked by unintelligent agents, but no account whatever is given of their origin and action. Yet, granting all this capital to the illustration, it does not get along very well. There is a "something in the surrounding world which helps all variations in the direction of a good time-keeper, and checks all those in other directions." But when this process is kept up for a long time, and this variable, indeterminate barrel is held to the single direction of a good watch, it begins to look as if some power had the creation of a watch in view. Surely if we were told that a florist had established a certain variety of flower by carefully selecting specimens which tended in that direction, and by rejecting all others, we should hardly feel justified in concluding that he had no purpose in such selection. The very indetermination which this illustration ascribes to the primitive organism, is the strongest reason for introducing a controlling plan or purpose, for there is no reason why this variable should develop up instead of down. There is no reason why at any point it should not turn back upon itself and destroy all that it had gained. If then we put such a germ at the beginning of things, we are forced to admit that it has developed upward,

and along lines of order and purpose. It has been met and molded by such conditions that the best has proved also the strongest ; and in this way, out of a primitive indeterminateness, has been brought a most intelligent, orderly, and harmonious system. Why? Before the doctrine can claim to have disproved the existence of purpose in nature, it must answer this question. No mechanical necessity can be shown. Assume a controlling purpose, and all becomes luminous and intelligible. Deny it, and all is incomprehensible.

Mr. Spencer, indeed, claims that he has explained it, but we must hesitate to give him our confidence. His argument, in brief, is that the homogeneous nebula must do something. It must lapse into the heterogeneous, and something important must happen. When things begin to "differentiate" and "integrate," and "effects" take to "multiplying," creation is fairly set upon its feet. Why they should not "differentiate" and "integrate" themselves into chaos, and "multiply" eternal confusion, he does not take the pains to tell. Besides, all this happened so long ago that criticism is impossible. He has no confidence in these great principles in recent times, however ; for now organic development is chiefly controlled by "the yet unexplained principle of hereditary transmission." The saving suggestion, however, is added that this principle is itself due to the differentiations, etc. He defines

evolution as follows: "Evolution is a change from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity, through continuous differentiations and integrations." Now I defy any one to give any reason why such a process should ever pass out of chaos. But must not something come out of such a process? Is not force persistent? Certainly, something must happen. A lawless and eternal confusion must certainly happen, and nothing more. The argument starts with the nebula, and postulates that something must happen; and then, plunging out of sight in the darkness of the unknown, suddenly re-appears in the daylight of creation, and without further argument triumphantly assumes that all this must have happened. To question this, is to convict one's self of denying the persistence of force; even to suggest that force must have been controlled in its working, is to be guilty of the same crime; and as this is the unpardonable, logical sin, it follows conclusively that the argument is a demonstration. Whatever has happened must have happened; hence the nebula must transform itself into order and harmony.

Again, until the correlation of physical and vital force is established, this doctrine of organic development from low and simple forms is in opposition to the law of identity and contradiction. The underlying thought of the atheistic argument is that a mere speck of organization, such as might well be

the product of chance combination of forces, would, with an infinitesimal increment and infinite time, develop into the sum of organic existence. Such a conception is possible if the vital and physical forces correlate; for in that case the power which appears in organic forms is only a change of mode, and not a creation. But we have seen that there are insuperable difficulties in the way of assuming such an identity, and that hence vital force must be conceived as something altogether peculiar and unique. Now the law of identity forces us to conceive a thing as always identical with itself. We can neither write $A = A + B$ nor $A = A - B$, except upon the supposition $B = 0$. Hence at any point of organic development, we can only view the actual, as the realization of the potential. The evolving germ is not creating but unfolding; the implicit is becoming explicit. Until the development-man proves that vital force is only transformed physical force, he must put into that seed which he plants at the root of things, all that actually comes out of it. If he does, he throws no light upon the origin of things. If he don't, his argument requires us to accept the equation: zero=infinity. In either case he is in a sad plight.

The reasoning by which the fact of purpose in nature is disproved, is thus seen to be wretched enough, even if we allow the atheist his atomic forces. But we have shown, in addition, that these atoms themselves postulate, as the necessary condition of

their working, a universal, ever-active, spiritual power. The atoms then must drop out of sight in the argument, and the question becomes : What is the nature of this all-ruling power? This universal being, in whom all nature lives and moves, what is it? By the previous arguments, we were forced to admit its spirituality and freedom. The continuous plan and order of nature, its countless adaptations, its complex and exquisite mechanism, its harmonious balance of warring powers, are all utterly unintelligible without the supposition that this being is a self-conscious intelligence. The so-called mechanical forces serve a controlling purpose. The chemical forces serve a controlling purpose. The organic forces seem instinct with intelligence. Both in the single organ, and in the wide-reaching law, we mark the presence of mind. The units and the totality are alike informed by what is inconceivable except as a guiding reason.

This hypothesis is not unwarranted. It postulates nothing strange. We refer our own activity to our conscious will and purpose, and we but extend this principle when we refer nature's activity to a conscious will and purpose. Purpose rules in the action of a rational man ; and, finding nature replete with marks of purpose, he concludes that it rules in nature too. And this hypothesis is the only one that explains the facts. There is no scientific discovery which in the least weakens its force. All the theories brought against it, at best, are full of impassable

breaks ; while a closer examination shows that every one of them is self-destructive. Science, then, is shut up to positivism or theism. If it chooses to content itself with a lifeless registration of coëxistence and sequence, it can make the attempt. But if it enters upon any explanation at all, it cannot stop short of a personal God. I gather this argument from a consideration of the teachings of natural science, without touching upon the psychological question. A study of the existence and nature of the human mind, would serve to show still more clearly the contradictory nature of the atheistic argument. But that is needless. Theism is the only doctrine that has any rational or scientific evidence, and both reason and science bind us to accept it.

It might be claimed, however, that we have established pantheism instead of theism ; that the previous arguments all tend to merge the world and its activities into God, and make him the only worker in the universe. I think it could be dialectically shown that even the previous arguments necessitate a distinction between God and the world ; but not to vex the reader with such a metaphysical discussion, the argument does not establish that comprehensive pantheism which alone is morally pernicious. As long as the human will and personality are left intact, all the conditions of religion are met ; and the external world might be given over to pantheism without prej-

udice to any moral interests whatever. But the fact of personality and freedom is so emphatically given in consciousness that it cannot be denied without discrediting consciousness in general, and wrecking the whole fabric of knowledge. We have here an insuperable barrier to that comprehensive pantheism which swallows up the human will and makes religion impossible ; and I am not careful to escape pantheism in its more restricted meaning. Indeed, I am persuaded that the piety of our time pines most of all for a conception of theism which will enable us to find God in the world, and also make a place for the world in God. The old deistic conception of God as prime-mover, and of the world as a machine which only needs to be set a-going to run on forever, is scarcely less fatal to religion than atheism itself. Both science and religion have adopted this conception to a very great degree, and the result has been the unnatural divorce and strife which have marked their entire history.

Such a conception was comparatively harmless while the world was young ; but as the universe grew in space and time, and marks of an ancient birth accumulated on every side, religion began to grow uneasy. The date of the Divine working was put farther and farther away, and belief in such working grew more faint. The world had taken care of itself so long, that it became quite credible that it might yet make a declaration of independence.

- The secondary causes which had managed the affairs of the empire through so many years, began to act as if they intended to usurp the throne. By the very supposition, nature was emptied of God, and the divine presence could be looked for only outside of nature. To this thought is due the pertinacity with which religion has insisted upon the fact of miracles ; and
- each infraction of nature's order has been a carefully-treasured proof of a power above the world, and beyond it. But in general, the ever-widening realm of law has had a paralyzing effect upon religion ; and piety has pined and ached for some token of a living God. A being whose activity is purely historical will not satisfy its longings. It is not enough to make him the author of nature ; he must be its administrator as well. If religion is to live, some way must be found of reaching God, in the movements of the world about us. And it seems to me that this demand is met by the theistic conception which science now enforces, of a universal, ever-living, ever-active God, in whom all things live and move and have their being. Viewed in this way, nature, from being a dead mechanism, lights up with life, and becomes instinct with thought and beauty. Instead of being an impenetrable wall which separates us from the Eternal, it becomes rather one mode in which he manifests himself to us. It is no longer an obscuring veil which no effort of ours can pierce, but is rather the background upon which the lights and shadows of the

infinite thought are seen to play. Instead of being rigid, and incompetent to spiritual uses, it becomes rather the pliant and subtle instrument of expression, whereby God communicates to us his thought and purpose.

This conception, too, serves to relieve theism of a certain hardness which the doctrine of final causes always tends to produce. That doctrine, assuming that every thing is done for some purpose beyond itself, leaves no room for a spontaneous activity which needs no ulterior justification. The error is similar to that into which religion falls when it insists that all the movements of the soul should have a conscious moral purpose. In this way religion often brings a hardness and stiffness into life, which is at once unlovely and unhappy. The free movement of innocent mirth and feeling is looked upon with suspicion ; and the unpurposed outflow of sympathy and affection into acts of tenderness and gentleness is visited with rebuke, because it can give no moral account of itself. As if it needed any justification beyond its own tenderness and beauty ! Now as a too rigid interpretation of life by a moral standard overlooks its atmosphere, and misses all that is spontaneous, so, I think, a too rigid interpretation of nature by a scheme of final causes, misses completely a most important aspect of creation. Nature no doubt exists for the instruction and development of created minds ; and its steady laws are the faithful covenant

which the Eternal keeps with his children. Think away nature's uniformity, and it becomes useless as an instrument of instruction. Think away the minds which are to be developed by it, and a large aspect of nature becomes meaningless, a purposeless and idle stir.

But creation has other uses too. It is not merely a book of science with its didactic purpose; it is also a book of song which seems the spontaneous utterance of emotion. It exists not only for teaching, but also for expression. The beauty of cloud and sky; the beauty which lies hidden in the snow-and-ice crystals which sheet the frozen regions of the Pole; the beauty of coral and sponge and shell with which the ocean's floor is spread; the beauty of grass and flower in forest depths, and far out upon the prairie, and deep beneath the waves of the sea—what is all this for? For a didactic purpose? Surely not. It exists for itself, and is its own justification. Take away created minds, and order and beauty and harmony must still exist. It is not to be thought of, that chaos should forever abide in the presence of the Eternal. Be it physical or be it moral, chaos must make way for a new earth. These ask no leave from man, and need no audience from him. They are indeed related to man, but do not exist solely for him. They express not so much the thought, as the meditation, of the Eternal; not so much a purposed outgoing as a spontaneous overflow. Except we

bear this in mind, we shall be in danger of judging nature by too narrow a standard, and of erecting human needs as the sufficient reason why the universe exists.

Yet, after all that can be said about the order and grandeur of the external world, it must still be held that sense and external nature are but poor interpreters of the Eternal. They ask questions which they cannot answer, and force upon us problems for which the senses furnish no solution. The clearer the proof of a supreme intelligence, the darker and more perplexing does the moral problem of the world become. The whole creation groaneth and travaileth together in pain. From the very beginning, nature has been "red in tooth and claw with ravin." On every side we see the most prodigious waste of faculty, of happiness, and of life. "Of fifty seeds she often brings but one to bear." Generations and races of men seem born, only to be beaten and pelted, by want and misery. A positive malignity, even, seems to exist in nature, producing contrivances for the production of pain, distorting, thwarting, destroying. What does it all mean? What purpose does it serve? If chance controlled all events, we might expect such things; but how can they be reconciled to the control of a supreme wisdom? What must be the character of the being who can even permit such disorder in his empire? These are questions which nature suggests, but does not answer.

Such hold has this aspect of things taken upon the

thought of some, that men like Schopenhauer and Hartmann have ventured to say that existence is a huge slough of woe and wretchedness, from which every rational man will seek to escape. The goal for which every one must long is annihilation. To fuse the skirts of being, and sink into the void, is the bright hope which the future offers ; and for its fulfillment, we must long as the tired and tossing inhabitant of the sick-bed waits for the coming of the morning. Yonder are the frontiers of being, and quickly we shall reach them. Then the last grand rush of darkness, the healing wave of annihilation, and the wicked cease from troubling and the weary are at rest.

It is clear enough that this is a partial and distorted view of life ; and yet, if we were restricted to the theism of nature alone, we must be left in painful suspense concerning the moral character of God. It is only as we consult our own moral nature, that we are enabled to resist the distressing suggestions which the world at times forces upon us. The highest revelation of God is found, not in nature, but in those rare and noble souls which have been the pole-stars of the race. We cannot but think that these most truly represent the Divine character. We cannot but think that the goodness in us is a faint type of a goodness more august than our own. Men may have a narrower vision from the observatory of astronomy than from the closet of

private prayer. The repented sin, the grief over the foul surrender, the renewal of the abandoned strife, the stirrings of a pure affection, the loyalty to duty, may teach us more of God than we could learn from volumes of natural theology. Given the idea of God, the study of nature serves for its expansion and verification ; but nature alone could furnish no adequate conception. From within we learn that, in spite of all opposing appearances, there is an essential goodness at the heart and root of things, which, in time, will justify itself and make its vindication plain. Men in general have never been able to believe otherwise. The disorder has been due, not to Divine malignity, but to an "adversary" who, in the world's harvest-field, sowed tares. Nor have they failed to attribute to the good a final victory. Ormuzd and Ahriman strive, but the contest shall not last forever. At the end of the great cycle Ormuzd must conquer ; and Ahriman is to be thrust into unfathomable depths, to disturb and distort no longer. Nor is it otherwise in our own Scriptures. As the curtain of revelation is about to fall, the river of life, foul from the taint of human history, is seen to grow clear as crystal once more. The discord which had vexed earth's harmony so long, is heard to cease. The unknown depths of an outer darkness swallow up all that is foul and polluting, and in far perspective appear the new heaven and the new earth. That it shall be so, is an inextinguishable conviction of the

human soul ; and the distressing aspects of nature are powerless against it.

Meanwhile, too, a deeper knowledge is ever serving to show that all things have their place ; and, one by one, the dark aspects of nature lose their gloomy character, and light up with benevolent purpose. Nature cannot be judged by the experience of a day. Brief observation shows that the moon rolls around the earth. It requires a longer time to discover that both earth and moon roll around the sun. But the fact that earth, moon, and sun are in motion around some point in the constellation of Hercules, unfolds itself only to the observation of years. It is the same in our judgment of nature. There is much which, at first glance, seems isolated and discordant ; but as our vision sweeps a wider circle order is more clearly seen. The direction of nature begins to manifest itself ; and that which we thought a reflux of the current proves to be only an eddy which in nowise disturbs the onward flow. Looking at the general course of things, it is clearly seen to be upward, and prophetic of a better yet to come. The discordant event becomes harmonious at last, and the underlying goodness and righteousness vindicate themselves. It is no malignant being who has lighted up our hearts and homes with affection. It is no immoral being who has planted in the human soul an ineradicable reverence for goodness. It is no immoral being who

has sent nation after nation down into the dust, and compelled them to drink the cup of a bitter and terrible retribution, because they dared to do injustice. If at any time Belshazzar has committed sacrilege, in that same hour and hall, invisible hands have written his doom. Whoever is attentive to history can, in the very hour in which successful iniquity is crowned, hear the words, Thou art weighed in the balances, and art found wanting. That final purpose, in which all lower cycles of purpose are included, is as yet but dimly seen ; but nature and history both, more and more clearly testify to

“ One God that ever lives and loves ;
One law, one life, one element ;
And one far-off, divine event,
To which the whole creation moves.”

“ What I do thou knowest not now, but thou shalt know hereafter,” was the word uttered long ago. Meanwhile we are content to know that in Him all things live and move and have their being. His working is not historical, but eternal. Still he holdeth the deep in the hollow of his hand, and calleth out the host of heaven by number. The Divine presence is no less real in the dome of Newton’s sky than in that which overhung the garden of Eden. And I count it a great religious gain that science has completely discredited the old deistic conception, and vindicated the existence and the presence of the living God.

When any doctrine, however clear, is disproved, we intend to give it up. As friends bear their dead forth to the green fields, and lay the cherished forms away forever out of sight, so, when science renders it impossible longer to hold them, will we gather up our most cherished beliefs and bury them forever. We seek truth, though it leave us in the world orphans, and write upon every tombstone, "Death is an eternal sleep." But there need be no fears of such a result. Again and again has the death of the Eternal been proclaimed, but in every case it proved that the wish, not reason, was father to the thought. Times innumerable has religion been overthrown; but still the devout soul kneels and prays. Aye, more, as in the retreat of the ten thousand, the weapons cast into our camp have been used to kindle our fires. We could not have spared the criticism to which we have been subjected. In its fierce blaze superstitions have shriveled and perished. Narrow and unworthy creeds have gone out in flame, and left the human mind free for a truer and nobler thought. Nature's calm uniformities overawed the tendency to find tokens of Divine displeasure in every untoward event, and taught man that there is no especial smile in the sunshine, and no peculiar judgment in the storm. Its vast extent also warned him against the egotism of supposing that the universe exists for him alone.

But now that we have in a measure learned

these lessons, we look round to find that we would not have back the old conceptions, if they could be had for the wishing. Who would longer care in the interests of piety to set up the date of creation 4004 B. C.? or to restore the crystal firmament with its points of light? The long times of geology and astronomy seem sublimest symbols of His infinite years. And surely the flashing splendors of the skies, the ponderous orbs, the blazing suns, the measureless distances, the mighty periods, are infinitely more worthy of the Creator than the pitiful, peep-show heaven for which the Church once contended. Never before was the universe so fit a manifestation and abode of the God we love as it is to-day. Never did the heavens so declare the glory of God as they do now. The most impressive lesson of the past is to fear nothing that is true, and to despair of nothing that is good. It bids us lay aside that secret skepticism of our own teachings, which is at once our weakness and our disgrace, and fear nothing from the truth, and fear nothing for it. We listen without dread, or even fear, for the last and worst word that science can utter; and we are confident that when that word shall have been uttered, the devout soul will still have the warrant of reason, as well as of faith, for joining in that ancient ascription of praise to the "King eternal, immortal, invisible, the only wise God."

CHAPTER VI.

SUMMARY AND CONCLUSION.

IT only remains to collect the results of our examination, that we may get a connected view of the principles of the New Philosophy. As between science and religion in general, we found that Mr. Spencer's arguments were such as to make both impossible. The ideas involved in religion are, in the last analysis, no less conceivable than those involved in science. If, then, the inconceivability of these ideas is a sufficient reason for discarding religion, it is also warrant enough for discarding science. But if the fundamental reality can so manifest itself as to make a true science possible, there is no reason why it should not so manifest itself as to make a true religion possible—no reason in the argument, I mean; the needs of Mr. Spencer's system are reason enough for him.

The claim that the limited and conditioned nature of our faculties renders religious knowledge impossible, tells with equal force against all knowledge. The limited nature of our faculties does, indeed, confine us to a limited knowledge—but a limited knowledge may be true as far as it goes. If so, we may

trust the knowledge we have ; if not, all truth disappears. To deny, then, the validity of religious knowledge, on the ground of its limitation, can only end in the denial of all knowledge. It must be borne in mind that, with Mr. Spencer, the unknowable is one and identical, though there is nowhere any proof of this unity. For any argument he offers, there might be an infinite number of unknowables, all quantitatively and qualitatively different. His position, then, is that the limited nature of our faculties utterly prohibits us from reaching the unknowable on its religious side, while we are entirely competent to deal with it on its scientific side. The truth is, that the unknowable is simply formless, indeterminate, dead substance, which obeys only mechanical laws, and has no religious side. Mr. Spencer, however, does not admit this, and confuses both himself and his readers with logical jugglery and thimble-rigging over the absolute, the infinite, the unconditioned, the first cause, etc. The following conclusions emerge at the end of the show :

Religion is impossible, because it involves unthinkable ideas ;

Science is possible, though it involves the same unthinkable ideas.

God must be conceived as self-existent, and is, therefore, an untenable hypothesis ;

The fundamental reality must be conceived as self-existent, and is not an untenable hypothesis.

God must be conceived as eternal ; and is, hence, an untenable hypothesis ;

The fundamental reality must also be conceived as eternal, and is not an untenable hypothesis.

To affirm the eternity of God, would land us in insoluble contradictions ;

To affirm the eternity of matter and force, is the highest necessity of our thought.

God must be conceived as first cause and absolute. But these conceptions contradict each other—a cause cannot be absolute, since it stands in relation to its effect ; the absolute cannot be cause, since cause implies relation.

Yet the only absolute we know is known as first cause, is known in causal relation to the universe. All other absolutes are metaphysical impostors, and the alleged difficulty vanishes.

God must also be conceived as infinite. “He must contain all power and transcend all law,” and “cannot be distinguished from the finite by the absence of any quality which the finite possesses.

God possesses all power, but cannot reveal himself.

God, though possessing all that the finite does, has no knowledge, no consciousness, no intelligence, no personality.

Our highest wisdom is to recognize the mystery of the absolute, and abandon the “carpenter theory” of creation for the higher view, that “evolution is a change from an indefinite, incoherent homogeneity

to a definite, coherent heterogeneity, through continuous differentiations and integrations."

The discussion which involves all these harmonies is fitly called the "Laws of the Unknowable;" at all events, the ways of this logic are past finding out. Henceforth the unknowable serves as a kind of prison-house in which to lock up all troublesome questions and questioners, and the discussion proceeds to the "Laws of the Knowable."

This part comprises Mr. Spencer's attempt to get rid of the "carpenter theory," by showing that matter and force are able to turn chaos into creation. He first provides himself with a homogeneous nebula, and then lets loose upon it the "Instability of the Homogeneous," the "Multiplication of Effects," and the "Integration of Correspondences." The argument, which has been epitomized already, may be restated thus: The homogeneous must lapse into the heterogeneous, that is, into creation. Three such formidable principles as those just mentioned, must do something. The absurdity of the argument has been sufficiently pointed out already; attention may be called, however, to the inner contradiction of these creative principles.

This instability of the homogeneous depends entirely upon the fact that force is constantly at work producing change. But such force is as powerful against the heterogeneous as against the homogeneous; and there is really no more reason for erecting

the instability of the homogeneous into a principle than for erecting the instability of the heterogeneous into a principle. From the assumed working of force, instability in general must result ; and no gain or advance can be held. All things must flow, and nothing could stand, under a principle like this.

Even granting, however, that the principle is a fact instead of a shapeless fancy, all organic stability at least, would be impossible under its operation. For even the heterogeneous, in Mr. Spencer's view, is but a collection of homogeneities ; the heterogeneous body is an aggregate of homogeneous bone, muscle, nerve, etc. ; and, since these single homogeneities are all subject to the law, they must all proceed to differentiate and fall into the heterogeneous, and destroy the organism. The "Integration of Correspondences" is a contradiction of the "Instability of the Homogeneous." The "Integration," etc., is trying to get like with like, that is, to produce the homogeneous. But the "Instability," etc., resolutely sets its face against this procedure ; and we must leave them to settle the matter between themselves. I will only point out that, whichever wins, the other must perish ; and, if either perishes, the argument falls to the ground. But because this folly has been put into ten-syllabled words it has passed for wisdom. Polysyllabic nonsense has usurped even the name of science.

But, looking away from this inner contradiction,

why are not all homogeneities unstable? Take the light-bearing ether, or even our atmosphere; and how long would it take to develop them into any thing? They are homogeneous enough to be unstable, why don't they make something out of themselves? Here is a capital chance for the great principles to work; but the moment the suggestion is made, we see that the so-called principles are only powerless and baseless fancies. It might be claimed, however, that the reason for non-development in these cases is, that "correspondences" are pretty stoutly "integrated." In truth we are not dealing with science at all. Mr. Spencer has deluded himself with a mass of vague and empty analogies, and has actually persuaded himself that he has proved something. His cumbrous and inflated terminology has been taken for science, and under its cover the profoundest trash has passed for deepest wisdom. And this is the New Philosophy! This is the new, the scientific book of Genesis! This is the luminous reasoning by which the need of a guiding mind is dispensed with! This is the firm scientific procedure which is so superior to the "carpenter theory" of the "Hebrew Myth." Still, until the new book is revised and corrected, I must think that it requires vastly more faith than the old one.

This reasoning was supplemented by the powerful argument that mind could not control the universe, and we must therefore adopt the more rational view,

that chance alone is competent to create and maintain the order of creation.

We next passed to the *Principles of Psychology*. Here we came upon the crowning absurdity, and the deepest contradictions, of the system. Before Mr. Spencer could claim to have entered the psychological territory it was necessary to prove, first, that life and the physical forces correlate; and, second, that mind and the physical forces correlate. Neither of these points was proved, or even made probable. To offer, as the explanation of a thought, a mechanical motion of brain-molecules, is no explanation whatever. The question, How comes it that a vibrating nerve becomes or produces a perception, a thought? was slurred over by calling it a mystery—a most convenient method of escaping difficulties. The ingenuity becomes all the more striking, when we remember that this question is one which this philosophy has no means of answering. Once over the gulf which separates life and mind from mechanically-acting matter, Mr. Spencer postulated and proved the following principles:

A unit of feeling, and a unit of motion, have nothing whatever in common, and all attempt to assimilate them to each other, but renders the fact more apparent.

Though they have nothing in common, yet are they opposite sides of the same thing.

The distinction of subject and object is one which

transcends consciousness by underlying it; and can by no effort be thought away.

For all that, the subject is only a modification of the organism; that is, the subject disappears in the object.

Mind is composed of units of feeling, and all its powers and activities are modifications of primitive sensations. To think is to feel. How we can rationally speak of feelings when there is no subject of the feelings, was not shown.

Feelings cluster together and form new compounds—consciousness, thought, etc. Why feeling should do so, why a dozen, or a million feelings should take on any new character, was not made plain—the question, as being a disagreeable one, was not even mentioned. To work out the system, we must assume that feelings can become conscious of themselves, and think about themselves, and compare themselves with one another; and surely the needs of the system are reason enough for any one who has not “an overwhelming bias in favor of”—sound logic.

There is a nerve-vesicle in the brain which represents every past experience; and all memory, etc., is but a re-excitation of those vesicles. A perception of relation is due to the fact that the related ideas are connected by nerve-fibers. These statements can only be received by faith. This wisdom is only justified of its children.

The association of ideas is the “Integration of Cor-

respondences"—which relieves the question of all difficulty.

The test of truth is thought-necessity. What we must think as real is real.

Thought-necessity is only the result of habit; hence, thought-necessity represents no objective fact, but only a subjective delusion produced by inveterate association.

The test is applied in the following instructive fashion :

We cannot help thinking that we are causes of our own actions, that we are capable of spontaneous activity.

Though a thought-necessity compels us to think so, this thought-necessity deceives us.

We are also forced to believe in the reality and identity of self; but this thought-necessity is a false witness.

In short, all the thought-necessities are vile deceivers except the one which supports Mr. Spencer. The belief in an external world he graciously accepts, upon the warrant of a thought-necessity. All others are spurned from his presence with contempt and indignation.

The ground for this distinction between the thought-necessities lies in the sore needs of Mr. Spencer's system. These serve as a supreme logical category, the genuine philosopher's stone for distinguishing the false and the true. Its discovery

certainly entitles Mr. Spencer to rank with the great creative logicians of the past. The invention of a new method in logic or philosophy is the highest, the supreme mark of genius.

But inasmuch as thought-necessities express only the result of habit, their claim to represent reality is utterly without foundation. The logical laws themselves become untrustworthy, the principle of causation has no assured validity ; and, as the necessary result, science and knowledge, the internal world and the external world, disappear into the void of a bottomless and boundless nihilism. All this follows necessarily from the attempt to lead all our mental operations back to experience. A closer examination, however, reveals the fact that experience itself is impossible without the presence of the very powers which it is supposed to create. Out of sensation, as such, nothing can come. Unless there be a power which imposes law upon it, it must remain a meaningless chaos forever. The science of the doctrine is complete. If true, both knowledge and experience are impossible.

Again, though the mind is the product of organization, and has no existence apart from the organism, my system is not materialistic. It teaches "a grand progress which is bearing humanity onward to a higher intelligence and a nobler destiny." It in no wise diminishes the beauty of this "grand progress" to know that it ends in annihilation.

Finally, after having examined these astonishing acrobatic feats of logic, and having duly recorded our admiration of them, we saw that the very terms of the incantation were secret traitors. Upon a closer examination into scientific teaching we found that mechanical forces (if there be such) are utterly helpless without the postulate of an ever-ruling, ever-active, spiritual power. The atomic bottom fell out of the atheistic argument, and left science no alternative except positivism or theism. The great medicine-man's charm, when brought into the daylight and examined, lost its magic power; and when properly disinfected proved entirely harmless. As long as it was shrouded in the mystery of the unknowable, the confused noises which saluted the ears of awe-struck listeners passed for the awful flapping of some dragon's dreadful wings; but as soon as it was summoned to give an account of itself at the bar of logic, it folded its tents after the high and far-famed Arabian fashion, and failed to put in an appearance.

There is no need to delay the verdict longer. I cannot agree with the popular estimate of Mr. Spencer. Though this system has been lauded to the skies as one of the greatest products of philosophical thought, I must say, on the contrary, that its principles are a miracle of confusion and absurdity. Comprehensive as is Mr. Spencer's scientific knowledge, he seems utterly unable to take a comprehensive view of the logical relations of a system. The most palpable

contradictions nestle side by side in the most friendly fashion, constituting a kind of logical "happy family." Yes and no lay aside their ancient enmity, contradictions swear eternal friendship, and the true logical millennium is ushered in. Mr. Spencer has picked up the loose and ill-defined notions of popular science and popular metaphysics, and without stopping to analyze their content, to say nothing of comparing them, he has proceeded to build, and the result is before us. A very little consideration would have sufficed to show that his psychology is fatal to rational science. A thoughtful criticism would have revealed the contradiction of his creative principles. One single, steady gaze into the fog of his argument would have shown the absence of every thing but imagination. But the mania of system-building proves too strong for rational judgment, and the system bears abundant marks of having originated in a mania.

If it were not that the history of philosophy abounds in similar absurdities, it would be impossible to believe that Mr. Spencer is serious. The grandeur which is claimed for his system is entirely due to the factors with which it deals. Any discussion of solar systems, of infinite space, time, and power, necessarily has an air of vastness about it which proves attractive. Mr. Spencer has painted a big picture with a big brush, and the popular imagination, which finds it easier to wonder than to understand, will have it that he must be a great painter.

Upon a sober survey it cannot be claimed that he has added much to our stock of knowledge. The associational doctrine has been expounded with far greater lucidity and far better logic. The same is true of cerebral psychology, while the gist of his argument in general is identical with that of Lucretius. He has merely combined facts which we knew before into a huge, fantastic, contradictory system, which hides its nakedness and emptiness, partly under the vail of an imposing terminology, and partly in the primeval fog. The doctrine began in a fog, and never succeeded in getting out of it. An ambitious attempt, and a dismal failure, is our deliberate verdict upon the so-called New Philosophy. There are, to be sure, many ingenious and profound remarks scattered through Mr. Spencer's books. There are, too, faint glimpses of many of the deepest truths of psychology, but there is an utter failure to appreciate their meaning. Philosophy is not to be estimated by its epigrams and profound remarks, but by its underlying principles; and applying this rule of criticism to this system, I reiterate my verdict. Apophthegms and proverbs serve for quotation, but they are not philosophy.

Science has fallen upon evil days. Every department is flooded with assertions which can never be put to a test, and upon the strength of propositions, which are amenable to neither proof nor intuition, the most extravagant theories are built up. In many

quarters, especially in biology and physiology, science has degenerated altogether from that severe adherence to ascertained fact, which has won for it its present distinction. Contradiction and absurdity go for nothing so long as they fall in with prevailing tendencies. But that such a work as the one in hand, should pass, at once for the profoundest philosophy and the most assured science, is discouraging to the last degree. It is extremely fashionable—the false is apt to be fashionable—to decry metaphysics as a useless study; but a small amount of logical culture and metaphysical knowledge would render such systems as this impossible, or at least harmless. I have not much expectation of a speedy revival of metaphysical study, still I do hope that intellectual buffoonery may not always pass for profound wisdom, even if it does call itself science.

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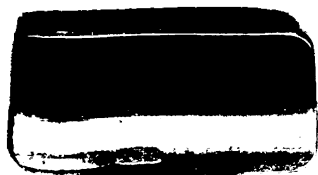
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